THE WILEY ENCYCLOPEDIA OF

PERSONALITY AND INDIVIDUAL DIFFERENCES

Volume I

MODELS AND THEORIES

Editors in Chief

BERNARDO J. CARDUCCI · CHRISTOPHER S. NAVE

VOLUME EDITORS: JEFFREY S. MIO · RONALD E. RIGGIO

WILEY Blackwell

**The Wiley Encyclopedia of Personality
and Individual Differences
Volume I**

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Models and Theories

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Bernardo J. Carducci and Christopher S. Nave

Volume Editors:

Jeffrey S. Mio

Ronald E. Riggio

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Sara G. Alves (Master's student, University of Porto) is a student of psychology, specializing in the area of social, organizational, and work psychology, in the Faculty of Psychology and Educational Sciences of the University of Porto. Her research interests include political psychology and group processes, as well as the development and elimination of prejudice. Currently she is working on a paper about social representations of sport by disabled athletes and is aiming to continue in postgraduate education.

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Journal of Behavioural Science) and S. E. Babcock et al. (2017) "Test review: School motivation and learning strategies inventory (SMALSI): College form" (*Canadian Journal of School Psychology*). She previously worked for Pearson Clinical Assessment as project coordinator for Canadian adaptations of intelligence and behavioral assessment tools.

Anjana Balakrishnan (MSc in Psychology-Personality and Measurement, the University of Western Ontario, 2015) completed her PhD in Social Psychology with a specialization in Migration and Ethnic Relations at the University of Western Ontario. Anjana is a member of the Canadian Psychological Association and a member of the Society for Personality and Social Psychology. Her research interests lie in the study of student success, international students, immigration, prejudice, how personality and culture interact to exert influence in life domains, and intercultural and interethnic relations.

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Marie Buda (PhD, University of Cambridge, 2013) received her doctorate in cognitive neuroscience from the University of Cambridge. She was formally Bye-Fellow and college lecturer, as well as director of studies in psychological and behavioral sciences at Downing College, University of Cambridge. During her time there, she was shortlisted for the Student Union's Teaching Award. She is currently a behavioral science consultant at Innovia Technology.

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Bernardo J. Carducci, PhD, was professor emeritus of psychology and Director of the Shyness Research Institute (www.ius.edu/shyness) at Indiana University Southeast and a Fellow of the American Psychological Association in Divisions 1: General Psychology, 2: Teaching of Psychology, 8: Personality and Social Psychology, and 52: International Psychology. He is the author of *The Psychology of Personality: Viewpoints, Research, and Applications* (3rd ed., 2015, Wiley) and *Shyness: A Bold New Approach* (2000, HarperCollins) and other books related to shyness translated into multiple foreign languages.

Jonathan M. Cheek is a professor of psychology at Wellesley College. His graduate study mentors were Arnold Buss, the University of Texas, Austin (MA), and Robert Hogan, Johns Hopkins University (PhD). He studies identity orientations, narcissism, shyness, and introversion, and is interested in the development and evaluation of personality scales.

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Douglas E. Colman received an MBA from Adams State University, and a PhD in experimental psychology from Idaho State University, and is an assistant professor at the University of Wisconsin–La Crosse. His research interests include personality and interpersonal perception, especially when applied to industrial and organizational issues. He is the primary author of "Seeing and feeling your way to accurate personality judgments:

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Keith S. Cox is an assistant professor of psychology at UNC Asheville. He is a clinical and personality psychologist. His research focuses on how memory for emotionally intense experiences relates to identity, emotional well-being, and clinical dysfunction. In the context of personality, he researches how life-story high and low points are associated with and predict subjective well-being and emotional health. In the context of PTSD, he researches how trauma memories change through the course of treatment.

Phebe Cramer (PhD clinical psychology, New York University, 1962) is professor emerita, psychology, at Williams College, and a fellow of the Society for Personality Assessment. She has been an associate editor for the *Journal of Personality*, and the *Journal of Research in Personality*. Her areas of research include defense mechanisms, narcissism, identity, and longitudinal development. She is the author of *The Development of Defense Mechanisms: Theory, Research and Assessment* (1991); *Protecting the Self: Defense Mechanisms in Action* (2006); *Story-telling, Narrative and the Thematic Apperception Test* (1996); and *Word Association* (1968).

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S. B. G. Eysenck (retired) is affiliated with the Psychology Department at the Institute of Psychiatry. Most of her interests and subsequent work was influenced by her marriage and work partnership with Professor H. J. Eysenck with whom she had four children. However, her main work interests also included research in personality psychology specifically in the questionnaire measurement of the dimensions of personality and cross-cultural research of the basic dimensions of personality (Barrett, Petrides, S. B. G. Eysenck, & H. J. Eysenck,

1998). Impulsiveness and venturesomeness (S. B. G. Eysenck, 2004) also became part of her program of research, as did addiction vulnerability, criminality, junior versions of all questionnaires, and cross-cultural studies associated with these areas of research.

Michael G. Feeney is a recent graduate of Rutgers University, having earned a BA in both psychology and philosophy. His research interests include personality research methodology and philosophy of psychology.

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Lewis R. Goldberg is a senior scientist at the Oregon Research Institute and an Emeritus Professor of Psychology at the University of Oregon. Among his honors are the Jack Block Award for outstanding career contributions to personality research from the Society of Personality and Social Psychology, the Saul Sells Award for outstanding career contributions to multivariate research from the Society of Multivariate Experimental Psychology, and the Bruno Klopfer Award for outstanding lifetime contributions to personality assessment from the Society of Personality Assessment. His contributions to the scientific literature in personality and psychological assessment have included articles on judgment and decision-making, and the development of taxonomies of personality-descriptive terms in diverse languages. To provide public-domain measures of the most important personality attributes, he has developed an Internet-based scientific collaboratory, the International Personality Item Pool (IPIP: http://ipip.ori.org/).

William G. Graziano, PhD, is a professor in the Department of Psychological Sciences, Purdue University, in West Lafayette, Indiana. He earned his PhD in psychology at the University of Minnesota. His interests are in motivational processes and behavior. For approximately 30 years, he and his research team and his collaborators focused on the motivational foundations for individual differences in agreeableness.

Jeff Greenberg is a professor of psychology at the University of Arizona. He co-developed terror management theory, which explains how awareness of mortality influences many aspects of human behavior. His research focuses on prejudice, self-esteem, political preferences, aggression, aging, religion, attitudes toward animals, and existential isolation. His recent co-authored books include: *Death in Classic and Contemporary Film: Fade to Black* (2013), *The Worm at the Core* (2015), *Social Psychology: The Science of Everyday Life* (2015).

Yael Gross completed her MA in psychology at Rutgers University–Camden and is currently a doctoral student in School Psychology at Lehigh University. Her research interests focus on evaluating the coordination between the family, school, and medical systems for children with chronic health conditions.

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Sarah E. Hampson, PhD, is a senior scientist at the Oregon Research Institute. She studies personality and health over the lifespan. Originally from the UK, she held academic appointments at the University of Lancaster, Birkbeck, University of London, and the University of Surrey before moving to Oregon. She is a past president of the European Association of Personality Psychology. In her research, she examines the influence of personality traits on health behaviors and health status at various stages of the life course from infancy to old age.

Peter J. Helm, PhD, is a postdoctoral fellow at the University of Missouri working under the mentorship of Jamie Arndt. His research focuses on existential isolation, self-esteem, aggression, self-presentation, meaning, and attachment.

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James Kean is research fellow at Monash Institute of Cognitive and Clinical Neurosciences (MICCN) and leads a team of researchers investigating all aspects of attention in children (aged 3 to 6). He is also an associate investigator at the Centre for Human Psychopharmacology, directed by Professor Con Stough, at Swinburne University of Technology since 2014. He earned a Bachelor of Science in Psychology in 2008 at Deakin University, Melbourne, and an Honors Degree in Psychophysiology in 2009, at Swinburne University of Technology. He is currently earning a doctorate in Science (Neuropharmacology), with a specific focus on child and adolescent neuroscience and complementary alternative medicine research. His work has been published in a number

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Sheherezade L. Krzyzaniak, MS, is a PhD candidate of Experimental Psychology at Idaho State University. Her research interests include personality judgment accuracy and the ways in which accurate perceptions are formed, specifically characteristics of the judge and target that influence components of accuracy. She has first-authored "The effect of information quantity on the distinctive accuracy and normativity of personality trait judgments" (2019), *European Journal of Personality*. Her work has also included development of resources for educators, including a chapter in the *Oxford Handbook of Accurate Personality Judgment*.

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William D. Marelich, PhD, is professor of psychology at California State University, Fullerton, and consulting statistician for Health Risk Reduction Projects, Integrative Substance Abuse Programs (ISAP), Department of Psychiatry and Biobehavioral Sciences, David Geffen School of Medicine at University of California, Los Angeles (UCLA). His research interests and publications address decision-making strategies in health settings, patient/provider interactions, HIV/AIDS, and statistical/methodological approaches in experimental and applied research. He is co-author of the book *The Social Psychology of Health: Essays and Readings*, and is an editorial board member of the *International Journal of Adolescence and Youth*.

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Tania A. Reynolds, PhD, is a postdoctoral researcher at the Kinsey Institute at Indiana University. Her program of research investigates social competition from an evolutionary perspective. She examined the evolutionary function of human grief (Reynolds, Winegard,

Baumeister, & Maner, 2015) and men's anti-gay bias (Winegard, Reynolds, Baumeister, & Plan, 2016). She received the NSF graduate fellowship to study the hormonal underpinnings of women's relationship insecurities (Reynolds, Makhanova, McNulty, Eckel, Nikonova, & Maner, 2018). She explores how women compete for mates by strategically disseminating peers' social information (Reynolds, Baumeister, & Maner, 2018) and how pressures to attract and maintain romantic relationships exacerbate women's dieting motivations (Reynolds & Meltzer, 2017).

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Gerard Saucier (PhD, University of Oregon, 1991) is a full professor of psychology at the University of Oregon, and a senior research scientist at Oregon Research Institute. His research examines the structure and measurement of personality, worldview, values, and moral viewpoints, with strong attention to cultural factors and differences. He is the author of over 80 scientific contributions, mostly research articles, including recent work on the relative cross-cultural ubiquity of personality-attribute concepts, how personality varies across situations, frameworks for attitude measurement based on "ism" concepts from language, and which psychological variables are associated with the largest cross-cultural differences.

Nicola S. Schutte, PhD, is an associate professor of psychology at the University of New England, Australia. Her research interests lie in the area of positive psychology and include a focus on motivation, emotional intelligence, self-efficacy, and positive affect.

Andrew Sih (PhD, University of California, Santa Barbara, 1980) is a distinguished professor in the Department of Environmental Science and Policy, and chair of the Animal Behavior Graduate Group at the University of California at Davis. He is an ISI Highly Cited researcher, and a fellow, former president, and winner of the Quest Award and Exemplar Award from the Animal Behavior Society. His research interests include the study of predator-prey behavior and ecology, mating behavior and sexual selection, impacts of behavior multi-species interactions, behavioral responses to human-induced rapid environmental change, and how all these can be influenced by individual differences in personality.

Rúben L. Silva (Master's student, University of Porto) is a student of social, organizational, and work psychology in the Faculty of Psychology and Educational Sciences of the University of Porto. With research interests on political and social psychology, he is currently working on papers regarding attitudes toward refugees, regarding the social representations of sport by disabled athletes, and voting behavior in European elections, among others.

David J. Sparkman is currently an assistant professor of psychology at the University of Wisconsin–Eau Claire, and received his PhD in experimental psychology from the

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Gordon Allport

Michael G. Feeney

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Gordon Willard Allport was an early developer of personality psychology, and is particularly known for his development of trait theory, which heavily influenced the way personality is studied today. Allport also made important contributions to social psychology, including the study of prejudice, and was involved in the debate surrounding the development of psychological research methodology. He also authored the first major book on personality psychology: *Personality: A Psychological Interpretation* (1937). In addition to his theoretical contributions to the field, Allport was also an accomplished teacher. As a professor at Harvard University, Allport taught one of the first courses focused on personality. Stanley Milgram, who would go on to become one of the most influential and well-known psychologists in American history, was one of Allport's students. Allport was also elected president of the American Psychological Association (APA) in 1939.

Consistently motivated by social beneficence, Allport sought to develop personality psychology and use its findings for the betterment of society. He also sought to preserve the uniqueness and the importance of the individual from the recent scientific movement of behaviorism, where people were reduced to averages and were subject solely to universal instinct and environmental pressures. Personality psychology maintained that people were not reducible to these universal and external factors, but maintained a certain level of individuality in their personality traits, which were the primary determinates of behavior. Although the current state of trait theories in personality differ significantly from Allport's original theory, he was primarily responsible for its initial development in American psychology.

Gordon Allport was born on November 11, 1897, in Montezuma, Indiana. His parents were Nellie Edith Allport and John Edwards Allport. Gordon Allport was the youngest of four boys. His older brother Floyd also became a psychologist. Before he was born, as well as after, Gordon Allport's family moved around the country a number of times. Gordon's father John became a medical doctor shortly before he was born. Allport's early school years were mostly spent in a suburb of Cleveland, Ohio. His family were practicing Methodists and his mother was especially devout, growing up in a strict, Free Methodist

household, and expressing desire that her sons enter into a religious vocation, such as missionary. Although eventually leaving the Methodist church for the Anglican-Episcopal church, throughout his life Allport continually affirmed his commitment as a religious man and wrote religious books during his lifetime (Nicholson, 2003).

Nellie Allport took on the primary responsibility of her children's spiritual development. Herself, growing up in an exceptionally devout Free Methodist household, Nellie instilled a great deal of religious ideals in her children. Prominent in these ideals were community engagement, hard work, and very little room for recreation. She was involved in many community organizations focused on goals such as female decorum and temperance. Allport's father John was not quite as involved in their religious education but was an important influence on his children's work ethic.

Allport's religious upbringing was steeped in ideals of hard work, selfless service, and the development of good character, not just in the self, but of society in general. This was during a time when an influx of immigration and increasing levels of urbanization were constantly changing the cultural tone in America, and decreasing its societal homogeneity. Thus, Allport's upbringing involved a sort of resistance to the perceived increasing focus of society on material wealth and worldly possessions. The family home itself served as a medical clinic, where Allport himself would contribute in various capacities as he grew older. Gordon's father was himself a hard-working country doctor, claiming to never have taken a vacation. After the move to Ohio, John Allport's accounts of Gordon's later time at Harvard suggested he very much kept to the strict, hard-working tradition instilled in him by his parents.

Upon graduating secondary school, Allport earned a scholarship to Harvard University. His brother Floyd was currently earning a PhD in psychology. Allport initially struggled academically, however, he eventually became more comfortable with the demands of college life and earned a bachelor's degree in both philosophy and economics. Allport's commitment to social service pushed him to heavy involvement with Harvard's department of social ethics. The department of social ethics was a somewhat new department at Harvard, which was focused broadly on using the insights gained from science to practice and further the ideals of social service. The department's mission became more crucial as the structure of society was changing and social work required more than just beneficent volunteers. The practice of using findings from the social sciences to determine the best course of action for a better society was of special interest to Allport, and he was able to witness the changing nature of social work in America. One of the important shifts in the philosophy of modern social work was a focus on the idiosyncrasies and nuances of individual cases. This was likely an important influence on Allport's development of personality and his emphasis on an idiographic approach to psychology.

Although Allport did not have an initially strong undergraduate focus on psychology, he would become intrigued by the subject after enrolling in Hugo Munsterberg's psychology class. Munsterberg himself was an impressive figure in the field of psychology, being at the time the senior professor in the Harvard psychology department. Allport did not particularly enjoy the class and did not like Munsterberg as an instructor, but the class did introduce him to the concept of exploring human nature using scientific exactitude. Munsterberg's predecessor, William James, would also have a great impact on Allport's philosophical development.

After graduating in 1919, Allport briefly taught in Constantinople, Turkey as part of a Methodist organization. His decision was likely motivated by his mother's early influence, which involved a large amount of enthusiasm for missionary ideals. Three of Allport's older brothers were in fact named after missionaries. However, despite this, Allport's family was somewhat displeased with his decision to move to Turkey, and convinced him to shorten his stay there. During this time, he developed his skill as a teacher, as well as experienced the relatively poor conditions in Turkey, which had a lasting impact on his philosophical outlook.

Allport's time in Turkey would not last long, however, and he soon followed in his brother's footsteps and returned to Harvard to pursue a PhD in psychology. On his way back to the United States he stopped in Vienna and met with Sigmund Freud. The encounter left Allport somewhat dissatisfied with psychoanalysis, but he claimed it was nonetheless an important influence on his later work on personality. Allport studied both psychology and social ethics in graduate school, but his main focus was psychology. Allport's interest in personality was also partially inspired by his brother's suggestion. It was a natural direction to take for Allport, being averse to the concept of instinct and the current dominance of behaviorism. The subject of his dissertation was the measurement of personality traits, and was in part a response to a recent call for individual assessment beyond simply intelligence testing. Specifically, Allport tested the traits ascendance-submission, which reflected a sort of dominance in social interactions, and introversion-extroversion. Allport's work on personality was motivated partially by a desire for practical benefit, and partially by a desire to preserve individuality in an increasingly depersonalized world, as well as a behaviorist and positivist scientific climate. Another motivation though was an attempt at standardizing the measurement and study of personality. Although Allport was not the only psychologist interested in personality, he was among the first to bring this sort of methodological order.

Following this, Allport would spend two years abroad on a traveling fellowship. He spent the first year in Germany, and the second at Cambridge, in England. Allport later stated that his time abroad had a significant impact on his intellectual development. He had a productive interaction with German psychologist William Stern, who was also interested in individual differences. He became particularly fond of the German philosophy regarding psychological research, with somewhat less focus on the detached quantification of research that was common in America. During his time in Germany, Allport also found great insight in reading works by William James. James provided Allport with the philosophical support to be able to balance his religious convictions with his desire for objective science.

After seizing the opportunity to renew his traveling fellowship for another year, Allport traveled to Cambridge. Allport's father died while he was at Cambridge, and the serene environment helped provide Allport with some comfort. Aside from that, Allport found little to gain academically from his time there. He was far less impacted by the state of psychological science in England. Allport would return to Harvard to teach, but as a part of the department of social ethics rather than psychology. He went initially to cover classes for his old mentor in the social ethics department, James Ford. Allport had some apprehensions about teaching, but accepted the offer on the hopes that he could teach a class of his own design, on personality.

It was during his time in teaching for the department of social ethics that Allport offered his first course on personality. Originally listed under "Personality and Social Amelioration," and

subsequently renamed "Personality: Its Psychological and Social Aspects," this course is widely credited as the first course offered on personality in America. As the original title suggests, this course, as a part of the department of social ethics, was not strictly a class on the psychological study of personality, but rather on personality within the context of social issues.

Allport desired to transfer to the department of psychology. However, this was not immediately possible, due to their faculties' desire to maintain psychology as a strictly experimental science. Allport's travels abroad had exposed him to a number of different influences that shaped his scientific philosophy and intellectual development, some of which were not aligned with the highly positivistic and quantitative expectations of American Academia. After two years teaching in the department of social ethics at Harvard, Allport briefly transferred to Dartmouth, but first he would marry Ada Lufkin Gould, a clinical psychologist and fellow Harvard graduate. The two had been romantically involved for several years, maintaining communication during Allport's time abroad. After two years at Dartmouth, Allport returned to Harvard as a professor of psychology, where he would remain for the rest of his career, and his eventual death in 1967.

It is difficult to consider Allport's impact on the field of psychology without considering the context in which personality psychology was developed. During the late nineteenth and early twentieth centuries, behaviorism and positivism were a strong force in psychology and in science in general. This meant that there was a methodological and theoretical push to treat psychology much like the natural sciences, which relied on assumptions of both homogeneity and malleability of humans. For behaviorists, human behavior was simply a function of past experience of situational responses to certain behaviors. The mechanism was the same for all people and there was no room for individual differences or the uniqueness of the person.

Sigmund Freud's psychoanalytic theory was also prevalent during this time, which similarly saw people as subject to unconscious processes that were largely a result of childhood experiences and sexual drives. For psychoanalysis, individuals were treated differently, but only in terms of differential childhood experience, and not any enduring individual qualities or motivations, like in Allport's trait theory. For Allport, assessing and predicting a person's behavior required measuring these individual qualities known as traits, and that these traits were determinative of behavior. That is, different people may behave differently in similar situations, precisely because they have different traits. For example, a person with the trait of shyness may not talk to many people at a party *because* they are shy. The trait is something internal, and part of their personality, not something simply learned through past experience.

Social and moral trends in society during Allport's time also highlight the significance of his work, and also may help explain some of it. During that time, there was a heavy emphasis on character development. At the time, character was a morally loaded term, and necessarily entailed certain socially desirable characteristics of the era, many of which were religiously motivated. Allport himself was highly motivated by societal beneficence and philanthropy. However, among other things, urbanization in America was playing a significant role in changing social issues such as crime and poverty. Social work was no longer simply a process of good will and hard work, it required the assistance of empirical study.

Allport's early motivation to use psychology to help ameliorate social problems was evident in his early course title and involvement in the Harvard department of social ethics.

For many academics involved with social ethics, part of the solution involved a shift from general amateur philanthropy to a more rigorous scientific inquiry into the subject. For Allport, a shift in terminology was important as well. Not only was Allport a central figure in the development of personality psychology as a field, but also in universalizing the term itself. The nineteenth-century focus on character development was still important, but Allport felt that the term character relied too much on moral connotations, and preferred the term personality, which he intended to refer to the objective self, which was supposed to be devoid of morally loaded characteristics. This shift was aligned with the positivistic desire to demoralize science, while at the same time attempting to preserve some of the uniqueness of the individual person.

A frequent terminological distinction used by Allport was nomothetic versus idiographic. He believed that the focus of psychology was at the time overly reliant on the nomothetic approach, which concerns general principles that are found in all people. By contrast, the idiographic approach concerned studying individuals, which of course is part of the aim of personality psychology.

Allport believed that it was important for psychology to be dynamic, as opposed to merely descriptive. For him, this meant an explanation of human motivation, rather than mere description and quantification of behavior. That is, he wanted psychology to be able to explain the why, and not just the what and how of human behavior (Allport, 1937). He also felt that other theories in psychology, such as psychoanalysis, focused too much on universal motivations, common to all humans, and not on motivations that may vary person to person. Allport argued that motivation was "functionally autonomous," that the source of motivation existed in the present and not, as behaviorists claim, in the conditioned reinforcements of past experience. Explaining the source of motivation then, became a task of studying individual traits of the person. That is, to explain behavior, we should study not the stimulus, or the person's past experience, but the person's traits.

During his lifetime, Allport played a central role in developing trait theory of personality. (see Trait theory of Allport). Allport asserted that traits were determinative, that behavior in certain situation was causally determined by traits, not just the stimulus or universal human instinct (Allport, 1931). He also believed that we could measure traits empirically or statistically, by studying people's habits. The goal is to observe consistencies in an individual's behavior that could be explained by some underlying trait. Traits though, were more generalized than simple habits. A habit could be seen as a repeated behavior, such as laughing often. A trait though, could explain the correlation between habits. For example, if the habit of laughing often was linked with the habit of frequently telling jokes, then those habits could be seen as being the result of some underlying trait.

Allport considered traits to be independent of each other, but only somewhat. Allport himself did not posit a quantitative distinction. If two traits were correlated past a certain, yet to be determined degree, then they could be said to both be determined by a more general trait. However, if they were independent past a certain degree, then they could be said to be separate traits. Allport did not describe the types or even number of traits to be standardized between individuals. In fact, he claimed that there were some universal traits, roughly maybe a few hundred, but within an individual, there could be thousands of different traits. Finding them was mainly a matter of assessing the correlations of the personsics habits.

Again, Allport emphasized that a trait was not the same as a moral quality. Traits themselves must be separated from moral qualities, as these might differ between people and populations. Instead, a trait must be objective, and universally observable, although it is possible that a trait may coincide with socially desirable characteristics. This is why Allport believed it was important, when possible, to develop terminology that removed moral connotations, as exemplified by the shift from the term character to personality. Along with Henry Odbert, Allport published an article identifying approximately 18,000 words in common use that describe patterns of behavior (Allport & Odbert, 1936). This was the first major endeavor to comprehensively search through common language in an attempt to identify trait-names for scientific measurement.

Another important aspect of traits for Allport was that behaviors that appeared to be contradictory to certain traits did not prove that the trait did not exist. He described traits in terms of frequencies of behaviors but a trait did not determine that a behavior was guaranteed in a given situation. For Allport this was partially a function of situational effects and partially a function of the prevalence of the trait itself. That meant that certain traits were more prevalent in some people than in others. This was an aspect of Allport's trait theory that differs somewhat from the way we think of traits today.

Allport conceptualized traits as falling into one of three categories in a hierarchy: cardinal, central, and secondary traits. Cardinal traits are themselves rare, and likely not even present in most personalities. A cardinal trait would be a trait that dominates a person's personality. This would likely be extremely evident and observable by anyone observing that person. However, in most people, their behavior is mostly a function of a combination of multiple traits, known as central traits, which are roughly equally involved in determining an individual's behavior. These central traits are numerous and present to certain degrees in everyone, and are generally the primary drivers of behavior. Secondary traits, on the other hand, are much less impactful on behavior and may be observable only in certain situations. They are, however, much more numerous within individuals. These secondary traits may also help explain some apparent inconsistencies regarding people's central traits. For example, when they display behavior in certain situations that appears contradictory to their central traits.

The distinction between the three categories was somewhat arbitrary and primarily served as more of a method for rating traits according to prevalence. Again, Allport claimed that few people possessed even one cardinal trait, that most of our behavior was determined by a handful of central traits, and less so by the more common secondary traits. The difference for Allport was how much influence the trait had on behavior across situations. Furthermore, the difference between one trait and another was a matter of relative, and never complete, independence. This description illustrates a somewhat fuzzy depiction of personality traits, rather than the push for fewer, but more distinct traits that we see today.

For Allport, the foundation of traits was likely physiological, but the cause could be different for different people. This was an important distinction in Allport's trait theory versus psychoanalysis and behaviorism. Rather than relying on universal, genetically determined instinct, or in unconscious motivations driven by childhood experience and sexual desire, traits could have different sources, and were dynamic. Shyness in one person could be primarily the result of genetics, but shyness in another person could be from negative past

experiences with socialization. Whatever the source, traits determined an individual's response to certain stimuli.

Throughout his career Allport worked at developing various methods of measuring personality traits. His efforts were informed by both the increasing academic demand for more objective and quantitative methods, and his own desire to incorporate the more qualitative and phenomenological approach that he developed an interest in from his time in Germany. He argued that personality can never be fully quantified or considered only in terms of individual traits, but that the person as a whole always needs to be considered. Allport referred to this later approach as the intuitive approach. Despite his efforts, the prevailing positivist attitude of the day forced him to develop more quantifiable methods for measuring personality traits. He did however attempt to maintain the importance of the uniqueness of the person by advocating the use of case studies.

It is important to note that although Allport is known as a central figure in the development of trait theory, his particular conceptualization of personality traits differ in several important ways from the way they are often defined today (Zuroff, 1986). Certain more recent definitions of traits require that they describe a pervasive consistency in behavior across situations. Generally, pervasive means across almost all situations. This definition of trait psychology is often cited in criticisms of it (see Person-Situation Interactions). Critics argue that trait psychology ignores the importance of situation when predicting behavior. Different psychologists' definitions of traits can vary. However, this is not an entirely accurate description of Allport's trait theory, which arguably has significant overlap with what is now known as interactionism (Zurroff, 1986).

Interactionist theories of personality (see Person-Situation Interactions) can be roughly differentiated into two categories: the mechanistic and the dynamic sense (Magnusson & Endler, 1977). Broadly speaking, the mechanistic sense refers to a more statistical interaction between traits and situation. That is, both the trait and the situation are needed for accurately predicting behavior, but do not actually interact with each other. In the dynamic sense, the personality trait may interact with situational variables to produce a certain behavior. For example, in a person who is comfortable around friends, but not around strangers, a situation at a party full of non-acquaintances may evoke the trait of shyness to cause the behavior of not initiating conversation with anyone at the party, this may lead to a level of discomfort that reinforces and maintains the traits of shyness for similar situations.

Most likely due to the young nature of the field, Allport was not frequently clear on his assertions regarding the interaction between trait and situation, even appearing to shift in his opinions throughout his career. However, Allport always maintained that the situation always plays some role in predicting behavior. He did not believe that a trait necessarily predicted behavior across all situations. In fact, a trait that would do that would likely constitute a cardinal trait, something that Allport explicitly stated was rarely present in anyone. For Allport, central and secondary traits were more common, but would only be present in certain situations. In other words, Allport did not require that a trait must predict behavior across all or even most situations. So Allport arguably would not be considered a trait psychologist today, at least in the strict sense. But the nature of the interaction between trait and situation for Allport is less clear.

Again, Allport considered traits to be real and determinative. He believed their source was neurophysiological, and that traits were the cause of our response to certain stimuli in

certain situations. This is in opposition to the notion that traits are merely a summary of behaviors and have no real concrete existence. Allport also believed that traits played a role in selecting situations, a view that is also common in some modern theories. However, he was less clear about the effect that situations might have on shaping traits. Although it was essential for Allport's trait theory that people did develop over time, he did not make assertions regarding the exact nature or causes of this process. Instead, much of his focus was on providing evidence for the existence of traits, at least insofar as they explain individual differences between persons.

Another noteworthy difference between Allport's traits and the more recent study of traits involves the trait constructs themselves. For Allport, individuals could have hundreds of traits, especially if both central and secondary traits are included. Also, some of these traits could contradict each other, depending on the situation. More recent models usually involve far fewer traits, such as the Five-Factor Model (FFM) (see Big Five). The more generalized nature of FFM traits allows for broader application across situations, but likely exhibits lower correlations across all situations. Allport's definitions for traits required consistency only across certain situations.

Modern theory also tends to assign people a place along a continuum for a given trait, rather than differentiating them according to a discreet hierarchy (e.g. cardinal, central, secondary). The idea is that the further toward either extreme of a given trait, the more prevalent that trait should be across situations in predicting behavior. Of course, the distribution could vary, which is part of the flexibility of modern trait theories. For example, a person could exhibit a behavior associated with a certain trait very often in a certain situation, but almost never in another situation.

Modern assessment methodology is also often different from what Allport attempted to move toward. Highly quantified tests, generalized across all persons are significantly different from Allport's emphasis on considering the person as a whole and against isolating traits individually, despite his early reliance on pencil and paper tests.

In addition to his contributions to personality psychology, Allport is also well known for his contributions to social psychology, specifically regarding prejudice. This work was likely motivated by his religious and moral character, as well as World War II, and the actions of the Nazi party in Europe. In fact, Allport was involved with the APA's efforts at the time to assist psychologists who were fleeing Europe. Allport was also involved in the Society for the Psychological Study of Social Issues. He also authored a text titled *The Nature of Prejudice*, which was to be highly influential. Allport is also frequently credited with influencing the development of humanistic psychology.

See Also

Big Five
Person-Situation Interactions

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Roy F. Baumeister

Autumn D. Nanassy

Rutgers University

Roy F. Baumeister is a social psychologist internationally known for his work related to the self. Some of his notable accomplishments include work on self-esteem, free will, social rejection and belongingness, and human sexuality. Baumeister was born on May 16, 1953 in Cleveland, Ohio. His parents immigrated to the United States from Germany. Baumeister graduated from high school in 1970 as the valedictorian of his class. Although he enjoyed math during grade school, and continued to study mathematics throughout college, he began to lose interest during his second semester of college at Princeton University. He was initially switched from his math major to philosophy and religion, but as a part of a compromise with his father he began to study psychology. Baumeister subsequently attended the University of Heidelberg and then Duke University, where he received his Master of Arts degree in 1976. Throughout his early college years, he became particularly interested in individual and behavioral differences in people with high and low self-esteem (Baumeister, n.d.a).

During his graduate career at Princeton University, he studied under the influential social psychologist Edward E. Jones, who was named the 39th most cited psychologist of the twentieth century by *Review of General Psychology* (Haggbloom et al., 2002). Furthermore, Jones made notable research advancements on several concepts that relate to the self and person perception, such as the fundamental attribution error and actor-observer bias. Although Baumeister struggled to narrow down his interests and broad questions during graduate school, Jones urged him to think experimentally and scientifically. Baumeister received his PhD from the Psychology Department at Princeton University in 1978, and accepted a National Institute of Mental Health postdoctoral fellowship with the University of California at Berkeley. It was during his postdoctoral fellowship that he began to study personality and social structure.

Once his postdoctoral fellowship ended, and when he had almost given up hope (Baumeister, n.d.b.), he received a job offer from the Case Western Reserve University in Cleveland, Ohio, where he then spent the next 23 years of his career. In his autobiography, he jokes that he was the only social psychologist in his department so he had the freedom to do whatever he pleased, but also states that it may have limited him in terms of professional

development (Baumeister, n.d.b.). After his time at Case Western Reserve University, he went on to hold positions at the University of California and Florida State University, and internationally at Vrije Universiteit Amsterdam in the Netherlands and King Abdulaziz University in Saudi Arabia. He is currently a professor at the University of Queensland in Australia.

Research

Self-esteem

Baumeister's research has focused on various concepts related to the self as well as interpersonal processes. A noteworthy research interest Baumeister has explored is the concept of self-esteem. Self-esteem is defined by Baumeister as "a favorable global evaluation of oneself as whole" (Baumeister, Smart, & Boden, 1996). Research conducted by Baumeister and colleagues suggests that boosting an individual's self-esteem may not always result in positive outcomes (Baumeister, Smart, & Boden, 1996; Baumeister, Campbell, Krueger, & Vohs, 2003). Throughout the self-esteem movement, parents, teachers, and therapists had concentrated on boosting individuals' self-esteem in an attempt to eradicate a variety of issues, such as crime and pollution. Although it was believed that self-esteem could act as a buffer in stressful situations, Baumeister and colleagues noted that attempts to boost self-esteem through school programs and therapeutic interventions may not lead to positive outcomes (Baumeister, Smart, & Boden, 1996; Baumeister, Campbell, Krueger, & Vohs, 2003). To avoid inflating an individual's self-esteem arbitrarily, they suggest that self-esteem should be boosted to reward ethical behavior or achievements, as opposed to indiscriminate praise, which could just as easily promote narcissism (Baumeister, Smart, & Boden, 1996).

Baumeister and colleagues have also performed several studies, both observationally and experimentally, examining the relationship between self-esteem and violence. His research concludes that threatened egotism, not low self-esteem, leads to violent behavior. In that regard, researchers note that inflating self-esteem may be counterproductive; it may be possible to inflate individuals' self-esteem, but it would be virtually impossible to protect every person against threats to their ego. Further, higher self-esteem may actually make individuals more vulnerable to ego threats, thus resulting in more violent behaviors (Baumeister, Smart, & Boden, 1996).

In another study examining threatened egotism, narcissism, self-esteem, and aggression, results suggested that self-esteem was not directly related to aggression. In this study, the relationship between narcissism and insult was experimentally examined. Participants were randomized to receive either positive or negative feedback. Results suggested that low self-esteem and narcissism did not lead directly to violence, but rather that the aggression of narcissists was preceded by threats to their ego by means of experimentally manipulated criticism and insult (Bushman & Baumeister, 1998).

Free Will

Baumeister has examined the concept of free will, also referred to in his work as freedom of action. He has studied free will through an evolutionary lens, and declares that free will may contribute greatly to the increase in and adaptive diversity of human behavior.

Furthermore, he suggests that the two components of free will are self-control and rational intelligent choice (Baumeister, 2008). In an autobiographical study that set out to determine what free will meant to the average person, Baumeister and colleagues concluded that individuals view free will as a form of conscious control over their own actions; free actions were associated with achieving goals, conscious thought and deliberation, positive outcomes, and moral behavior (Stillman, Baumeister, & Mele, 2011).

Baumeister states that regardless of whether or not an individual believes in the concept of free will that the following facts must be acknowledged. First, most individuals believe in free will. Second, that the belief in free will can be manipulated, and this manipulation has consequences on subsequent behavior. For example, decreasing an individual's belief in free will made participants more likely to lie, cheat, steal, and hurt someone innocent, as well as make individuals less likely to help others or reflect on wrong-doings. Baumeister speculates that free will may exist to help individuals maintain self-control, make rational, intelligent choices, plan, and take initiative.

Social Rejection and Belongingness

Baumeister and Leary established that the need to belong is a fundamental human motivation (Baumeister & Leary, 1995). They propose that the need to belong consists of two aspects. The first aspect is that people desire frequent, personal interactions with the same person. Second, individuals need to perceive that there is an interpersonal connection marked by stability over time and concern for well-being (Baumeister & Leary, 1995). Furthermore, the Need to Belong Theory states that humans have a natural need to belong with others, and that lack of belonging could lead to negative health and psychological outcomes. Moreover, Baumeister distinguished that there are gender differences in the need to belong. Women prefer to have a few close, intimate relationships, whereas men prefer to belong to a group with shallower connections (Baumeister & Sommer, 1997).

Human Sexuality

Baumeister has studied several different aspects of human sexuality. Baumeister invented the term erotic plasticity, which refers to the extent one's sexual drive is shaped by cultural, social, and situational factors (Baumeister & Vohs, 2004). Overall, he concluded that women have high erotic plasticity, meaning that their sexual drives can be easily influenced by these factors, whereas men have very low erotic plasticity and have sex drives that are not as variable (Baumeister & Vohs, 2004). Baumeister has also researched rape and sexual coercion, the cultural suppression of females' sexuality, and ways in which couples negotiate their sexual patterns. Overall, this research suggests that sex can be treated as a resource in a "marketplace," where women are the sellers and men are the buyers, synonymous to an economic exchange.

Baumeister examined sexuality as it related to self-control. He noted that self-control is advantageous in the sense that it allows individuals to control their impulses and abide by social regulations, but that it is notably challenging to do so when it comes to sexual impulses. Baumeister and colleagues noted a link between low self-control and socially undesirable, inappropriate sexual behavior. Individuals with low or depleted self-control

were less likely to repress inappropriate sexual thoughts and more likely to engage in sexual activities outside of their relationship. Results suggested that diminished self-control was highest in individuals with strong sexual desires. Consequently, although not experimentally tested, researchers deducted that life circumstances that make demands on self-control are risk factors for individuals to display increasing inappropriate sexual behavior, pathological behavior, and potentially even criminal behavior (Gailliot & Baumeister, 2007).

Baumeister has also researched concepts such as self-presentation, emotion, consciousness, self and identity, self-regulation, sexuality and gender, aggression, and meaning. Throughout his career, he has written numerous books that utilize findings from the social sciences to address philosophical questions. Baumeister has written over 500 scientific articles and authored over 30 books. In 2013, he was presented with the William James Fellow Award by the Association for Psychological Science, one of their highest tributes, in honor of his lifetime achievements. He has been commended for his intellect and contributions to the field of social psychology by several experts, and will go down in history as one of the most influential social psychologists of his time (Baumeister, n.d.b.).

See Also

Aggression, Personality Correlates
Anger
Delay of Gratification
Narcissism, Assessment of
Self-esteem, Expressions of

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Jack Block

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Background

Professor Jacob "Jack" Block was born on April 28, 1924. Block's parents immigrated to New York together. His mother was from Russia, more specifically from Byelorussia, now known as Belarus, and his father was Lithuanian. At 14-months old, Block's father passed away and he was raised by his single mother in New York, who continued to run the jewelry store his father operated before he died. Block attended PS2 public school in Brooklyn, New York, and then Stuyvesant High School in New York. During high school, Block delivered tuxedos for a local tailor for $2.00 a day on Saturdays to make some money. After enrolling in Brooklyn College at the age of 16 he felt unhappy and was not doing well, leaving after the first year. Block worked as a machinist for a while and despite being a good machinist, grew bored with the work and returned to Brooklyn College. He continued to struggle with academic life, earning a GPA of 2.23, a feat he notes as being "the lowest undergraduate grade point average of anybody" (personal communication, May 1, 1994). Despite this, he earned his bachelor's degree and because he was a three varsity letter athlete at Brooklyn College (swimming, wrestling, and football), the first ever, was accepted by New York University (NYU). Block had begun taking pre-med courses at Brooklyn before graduating, but had not completed many by the time he started at NYU and so he enrolled himself as two students (with the same name) in order to complete his pre-med courses sooner. It was only due to the fact he was doing so well, that Block was allowed to continue even after his ruse was discovered. He applied to attend the University of Wisconsin despite the semester having already started and so was required to submit his manuscripts from previous colleges. Luckily for Block, NYU were prompt, sending his manuscript that highlighted Block's academic prowess with a host of straight As, whereas Brooklyn College, at which his GPA was the lowest of anyone, was delayed. However, by the time the Brooklyn College transcript was received, he was already enrolled at Wisconsin. He went on to complete his Masters in 1946. In 1947, following a number of rejections by medical schools due to his overall grade point average, Block was again rejected by the Stanford Medical School,

but was accepted by the Stanford Psychology Department. From there, Jack settled into a PhD at Stanford University with a major in the field of psychology, and minors in sociology and physiology. During his time at Stanford, Jack met Jeanne, another PhD student with remarkably similar research interests to his own. The two PhD students began to take classes together and it was not long before they began to collaborate on ideas and combine their research efforts. At the conclusion of their studies at Stanford in 1950, Jack and Jeanne were not only married, but had combined their theses, with Jack graduating in 1950 and Jeanne in 1951. The couple had developed concepts on *ego-control* and *ego-resiliency* as underlying mechanisms for understanding motivation, emotion and behavior (Block & Block, 1980). These ideas would formulate their life's work. Jack focused his work on personality development and its capability of change throughout the lifespan. His research conflicted with many accepted ideas in personality theory. Jack's research highlighted the consistency with which people maintained particular personality traits, regardless of the environment they were in, which opposed the idea that personality was more dynamic and would adjust depending on the environment the person was placed in. His most stark contrast was his belief that a personality construct could not be limited to, and tested on the basis of the five broad traits commonly associated with personality theory today. Professor of Psychology at University of California Berkeley, Jeanne Block, passed away on December 4, 1981. Professor Emeritus Jack Block continued to lead their joint longitudinal study until he passed away in 2010. Jack and Jeanne are survived by their four children Susan, Jody, David, and Carol Block as well as four grandchildren Brian, Robert, Josh, and Gabriel.

Major Contribution: The Block and Block Longitudinal Study

In 1968, Jack and Jeanne Block began their 40-year long research study into human development. The pair recruited 128 children from nursery schools. The two core themes of their work investigated the concepts of *ego-resiliency* and *ego-control*. The latter, ego-control, investigates the degree to which a person is capable of delaying gratification in the service of obtaining future goals. The outcomes provide information on an individual's ability to inhibit impulsive behaviors as well as forecast future outcomes based on decisions made in the present. Ego-resiliency, which is intertwined with ego-control, highlights an individual's "invulnerable survivorship," which is to describe their ability to maintain consistency regarding these impulses when placed in new and challenging environments (Block & Kremen, 1996). Research in developmental neuroscience has since identified their findings to reflect an adaptation of the individual in new environments, despite poor early childhood attachment experiences (Arend, Gove, & Sroufe, 1979). The two components encompass what Block called *observable phenomena of motivational control and resourceful adaptation* and spent his career highlighting their key place in understanding a person's personality (Block & Kremen, 1996, p. 351). The participants were followed-up for the next 40 years.

Following the passing of Jack and Jeanne, Jack chose the University of California Santa Cruz to continue their life's work. Developmental psychologists Avril Thorne, Per Gjerde, and David Harrington continue to follow up the participants (now in their fifties) and analyze the mountainous levels of data collected since 1968.

Other Notable Works: The Q-Sort Method in Personality Assessment

Jack Block devised a method for quantifying the normally subjective methods involved in personality assessment. Block noted that many of the assessments of the day made by professionally trained experts in the personality field were unreliable due to the subjectivity of the observer. The method utilizes the key components of personality combining multiple theoretical frameworks so as to ensure the strengths of each clinical viewpoint is incorporated. In the method, an observer is given a set of 100 statements that describe basic characteristics of the person from their mannerisms in social situations, to their level of intelligence, to the way they express emotion. One unique aspect of the technique is that the individual, rather than the variable(s) under study, is the subject of factor analysis. This is the inverse direction to more common factor analytic techniques and it enables the observer to identify the subject as being one of three personality types *resilient, overcontrolled*, or *undercontrolled* (Weir & Gjerde, 2002) as originally defined by Block. The method is used specifically to elucidate observer-evaluations of an individual that can then be compared to other observations on a uniquely independent basis. The Q-sort method of personality assessment went on to be called the California Child Q-Set (CCQ) and the California Adult Q-Set (CAQ), which are still used today.

Acknowledgments and Awards

Jack Block was awarded multiple fellowships during his academic career including the Buckel Fellowship at Stanford University in 1948, the Social Science Research Council Summer Fellow, 1954 and then again in 1958, the Foundation Fund for Research in Psychiatry Fellowship in 1960 and the National Institute of Mental Health Special Research Fellowship from 1963 to 1964. Following this, Black was awarded the James McKeen Cattell Fellowship from 1978 to 1979, the Humphrey Fellowship at Ben-Gurion University in Israel in 1987, became a Fellow for the American Association for the Advancement of Science and finally was elected to fellow status within the American Psychological Association in Divisions 1, 5, 7, 8, and 9.

Professor Jack Block was awarded the Hofheimer Prize for Research granted by the American Psychiatric Association. He received the Appleton-Century-Crofts Award for the book, *The Challenge of Response Sets* in 1965. In 1985, he received the Henry A. Murray Award within the Division of Personality and Social Psychology, from the American Psychological Association. In 1990, received the G. Stanley Hall Award within the Division of Developmental Psychology from the American Psychological Association. The Society for Research on Adolescence presented him with the Social Policy Award for his work on drug usage between 1990 and 1992. In 1998, he was awarded the Bruno Klopfer Award for advancing the field of personality assessment. Finally and most fittingly, Jack Block was awarded Saul B. Sells Award for his lifetime of achievements presented to him by the Society of Multivariate Experimental Psychology, 1998.

Conclusion: Personality and Individual Differences

Professor Emeritus Jack Block dedicated his life to the meticulous work in personality assessment and developmental psychology, contributing to the field for over 60 years. His work with his wife, Jeanne has become one of the most historical longitudinal studies in personality psychology in the world. His work in longitudinal studies continued with the publication of the book *Lives Through Time* (1971) describing the remarkable stability of an individual's personality over long periods of time, contrasting with the theories of the time that described personality as more malleable and changing. The Block and Block Longitudinal study continues to this day, a legacy that will provide monumental data for the generation of personality psychologists.

See Also

Big Five
Ego-control/Ego-resiliency Theory (ARCH)
longitudinal research

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David M. Buss

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Background

David Buss was born April 14, 1953 in Indianapolis, Indiana, to parents Arnold H. Buss and Edith H. Buss. He has early roots in psychology, as his father earned his PhD in Psychology from Indiana University in the early 1950s and went on to be a professor of psychology at the University of Pittsburgh, Rutgers, and the University of Texas. David Buss followed in his father's academic footsteps, pursuing psychological studies. He earned his Bachelor of Arts degree from the University of Texas in 1976 and continued into his PhD in Psychology at the University of California, which he completed in 1981. His early academic career began in 1981 as an assistant professor at Harvard University, where he remained for four years. He then moved on to conduct research and instruction at the University of Michigan, where he was an associate professor for four years and then a professor for five additional years. After his time at the University of Michigan, he moved onto a professorship at the University of Texas, where he is still currently positioned. In his current role as a full professor, David Buss is the head of the Individual Differences and Evolutionary Psychology Area at the university, and actively conducts research, teaching, and supervising graduate students in the field of evolutionary psychology.

Major Research

Buss was a trailblazer in the field of evolutionary psychology. His early work describing sexual behavior in the context of human evolution theory revolutionized the current thinking in human mate selection, retention, and adaptive romantic relationship behaviors. Before discussing Buss' primary contributions and positions in the field, it is important to understand what the discipline of evolutionary psychology entails. As a brief summary, evolutionary psychology is a diverse and complex field, which combines insights from a variety of disciplines, including: evolutionary theory, biology, psychology, cognition,

economics, and anthropology. Overall, the field rests on a few core premises, which include: (1) manifested behavior depends on underlying psychological mechanisms, (2) evolution by selection in the only causal process capable of creating such complex organic mechanisms, (3) evolved psychological mechanisms are functionally specialized to solve adaptive problems, (4) selection designed the information processing of many evolved psychological mechanisms to be adaptively influenced by certain information in the environment, and (5) human psychology consists of a large number of functionally specialized evolved mechanisms, each sensitive to particular contextual input.

Returning to Buss' core contributions, Buss' primary research focuses on human mating strategies. He is best known for his studies on mate selection, tactics of mate attraction and retention, and the mating emotions of jealousy, love, and lust. In his early work, he began discussing the psychology of sexual selection in the context of Charles Darwin's human evolution theory. He posited that modern humans are similar to their historical ancestors, employing strategies that are best suited for their biological and evolutionary needs, depending on their sex. Despite a modern society, Buss strongly articulates that these sex differences exist for men and women due to evolutionary adaptation. He suggests that the diverse adaptive challenges that the sexes have faced throughout evolutionary history are the primary determinants shaping the behavioral differences observed between males and females in their sexual and relationship strategies today, even in our modernized world. A comprehensive summary of this position is detailed in the book *The Evolution of Desire: Strategies of Human Mating* (Buss, 1994). Gender differences in the context of evolutionary theory are also discussed in the entry titled Gender differences / evolutionary. Another primary research stance of Buss' is the idea that in a mating relationship, females will prioritize commitment while males will prioritize reproducing offspring. Buss proposed Strategic Interference Theory, which suggests men and women deal differently with intersexual deception. Buss separates the concepts of emotional and physical infidelity, suggesting that women will be more anxious about their mate's *emotional* infidelities, while men will be more concerned about *sexual* ones. Therefore, female jealousy originates from "threat to commitment," while jealous behavior in men arises from the fears of "paternity uncertainty." For a detailed examination of how jealousy and relationship threat manifest in the context of this theory, see the book *The Dangerous Passion: Why Jealousy is as Necessary as Love and Sex* (Buss, 2011) and further, the entry titled Evolutionary theory and personality correlates of mate As a part of Dr. Buss' research program, his contributions have also involved the development of many research instruments to collect data within this field. One such example includes the Jealousy Instrument (Buss et al., 1999), which captures participant information regarding relationship status, quality, issues of infidelity, and relationship concerns. Another example is the Mate Attraction Tactics survey (Bleske-Rechek & Buss, 2006) which captures information about the behaviors and approaches individuals engage in to attract a potential mate. These tools (and many others) are readily available on his lab website.

Buss leads several active research programs at the University of Texas at Austin, including specializations in mating emotions and the psychology of prestige and status. Moreover, his most recent research has focused more heavily on the darker side of human nature and romantic and sexual relationships. Specifically, he is conducting research on partner jealousy, stalking behavior, as well as intimate partner violence and murder. This research is guided by the conceptual frameworks anchored in evolutionary psychology.

Authored Books and Popular Press

Given the strong link to love, sex, and relationships, and the importance of these topics in our modern world, his work is frequently featured in the popular media. This includes appearances on nationally syndicated televised programs and scientific documentaries, article and commentary features on psychology in multiple popular-press magazines, and other digital media outlets. David Buss has been an invited speaker and keynote address to over 40 psychological association conferences (including the American Psychological Association, the Association for Psychological Society) as well as numerous universities and academic institutions, and corporations.

In addition to his over 200 published academic articles (see Buss' CV, as per the University of Texas departmental lab website, 2018), Buss has also had many written features in a variety of popular psychology outlets, and has authored several books for wide-ranging audiences, from academic scholars to university students and the general public. His textbooks include: *Personality Psychology: Domains of Knowledge About Human Nature* (Larsen & Buss, 2017), *Evolutionary Psychology: The New Science of the Mind* (Buss, 2016), and *The Handbook of Evolutionary Psychology* (Buss, 2005a). In addition to academic textbooks, Buss has also authored several books for public audiences, including: *Why Women Have Sex: Women Reveal the Truth About Their Sex Lives, from Adventure to Revenge (and Everything in Between)* (Meston & Buss, 2009), *The Evolution of Desire: Strategies of Human Mating* (Buss, 2008), *The Murderer Next Door: Why the Mind is Designed to Kill* (Buss, 2005), *The Dangerous Passion: Why Jealously is as Necessary as Love and Sex* (Buss, 2011) and *Sex, Power, Conflict: Evolutionary and Feminist Perspectives* (Buss & Malamuth, 1996).

Acknowledgments and Awards

Buss' awards and honors are numerous. As an early researcher, Buss was awarded the 1988 APA Distinguished Scientific Award for Early Career Contribution to Psychology (American Psychological Association, 1989). Moving forward, Buss continued to be acknowledged for his work and extraordinary contributions to the field of psychology. Alongside many distinguished faculty and fellow acknowledgments and honors over the past 30 years, Buss has also been presented with the G. Stanley Hall Lecturer Award (1990), the APA Distinguished Scientist Lecturer (2001), and the 27th Most Cited Psychologist in Introductory Psychology Textbooks (2003). He has been named as one of 30 Most Influential Psychologists (2013), and the Most Eminent Psychologists of the Modern Era (2014). A detailed list of his awards can be found on his CV, located on his lab website (2018).

See Also

Buss Evolutionary Psychology
Evolutionary Theory of Personality
Gender Differences/ Evolutionary
Evolutionary Theory and Personality Correlates of Mate-Poaching

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Paul T. Costa Jr.

James Kean

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Background

Paul T. Costa Jr. was born on September 16, 1942 to Paul (Sr.) and Esther Costa, in Franklin, New Hampshire. His mother Esther, a renowned figure in radio broadcasting, spent time interviewing several prominent figures of the time, including Eleanor Roosevelt and the matriarch of the Kennedy family, Rose "Countess" Kennedy, mother of nine children, including President John F. Kennedy.

In 1964, Professor Costa earned his undergraduate psychology degree from Clark University. Costa went on to complete two master's degrees in human development in 1968 and 1970, both at the University of Chicago. Between 1970 and 1972, Costa completed his PhD and went on to teach at Harvard University until 1973 where he moved to the University of Massachusetts, Boston. In 1975, following a collaboration with Professor James Fozard, a young budding PhD student was referred to him by the name of Robert McCrae. In 1976, Costa hired McCrae as a director for a Smoking and Personality project grant they had received. In 1978, Costa became the Chief of the Section of Stress and Coping and continued to work on the project with McCrae for two years. In 1985, Costa became the Chief for the Laboratory of Personality and Cognition, and was then awarded the title of President of the Adult Development and Aging division of the American Psychological Society. In 1995, Paul Costa became the President of the International Society for the Study of Individual Differences. During the many fruitful years of his career, Paul Costa also had a fruitful marriage with his wife Karol Sandra Costa, having three children, Nhia, Lora, and Nicholas.

In 1967, Costa published his first article on memory and ambitions in centenarians in the *Journal of Genetic Psychology*. The publication hinted at what Costa would later dedicate most of his work to, asking the questions that may help him explain the fundamentals of personality "How does the centenarian integrate his extensive past experiences with his present moment of existence?" (p.3). Since this initial piece of writing, Costa has written over 300 academic articles and several books, which have earned him over 125,000 citations

to date with an average of just over 8,800 citations per year between 2013 and 2017. His work has made him one of the most cited living psychologists in the world.

Major Contribution: The Neuroticism-Extraversion-Openness to Experience Personality Inventory (NEO-PI)

In 1975, one of the most successful psychological research partnerships would begin upon a chance referral from a psychologist in common – Professor James Fozard. In 1976, Paul Costa hired the recent doctoral graduate student Robert McCrae as a project director for a Smoking and Personality Grant. After working side by side for two years on the project, the pair had developed a working relationship that would last well into the new century, and continues today. In 1972, Costa co-authored a book with Salvatore R. Maddi on humanistic personality theory titled *Humanism in Personology: Allport, Maslow and Murray*. The book explores the ability of man to possess both freedom and dignity despite the antagonistic environment he finds himself in (Maddi & Costa, 1972). The text investigates the benefits of conducting psychological research in as natural a setting as possible, with limited numbers of controls, allowing the researcher to obtain as pure a form of behavioral data as possible. This initial publication set the tone for Costa's later personality work with McCrae, looking deep into to the humanistic elements of an individual's subjective experience.

The pair continued to work in Baltimore, Maryland within The National Institute on Aging's Gerontology Research Center. The database contained within the research center allowed the duo access to datasets of considerable size, ideal for measuring the consistency of personality dimensions in large cohorts. This led the research team to compose a pivotal publication in the development of their personality theory – *Age Differences in Personality Structure: A Cluster Analytic Approach* (Costa & McCrae, 1976). The publication utilized the factor analytic work by Raymond Cattell, dividing up the well-established 16 personality factor questionnaire into age groups and elucidating which factors remained stable over time. In this case *anxiety-adjustment* and *introversion-extraversion* were the two consistent dimensions of personality that were deemed stable over time. Following on from this work, the pair discovered that besides the previously agreed upon traits of Neuroticism (N) and Extraversion (E) there was a clear dimension they denoted Openness to Experience (O). This led to the first ever version of their personality inventory including these three factors (Costa & McCrae, 1978), which they went on to call the Neuroticism-Extraversion-Openness Inventory (NEO-I) (Shock et al., 1984). Thanks to their continued work on the Baltimore Longitudinal Study of Aging, the inventory was revised to include two more factors denoted Agreeableness (A) and Conscientiousness (C) (Costa & McCrae, 1985). In 1985, the inventory was renamed the NEO-Personality Inventory (NEO-PI) and contained each of the five traits (Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness), also known as the Five Factor Model (FFM). The personality factors were each measured using 48-items per factor, and each of them was broken down into six sub-scales (denoted *facets*), with the last two factors (A, C) measured using only 18-items with each factor. The test totaled 181-items with the validation questions confirming the truthfulness of the answers provided by the participant. Research using the inventory indicated that each factor was consistent and useful in understanding the depth of the personality of the person completing it.

In 1992, Costa and McCrae revised the inventory, with six facets per factor, 30 facets in total, and it became one of the only personality inventories to measure all five factors now well-established as part of the individual personality structure (Costa & McCrae, 1992). The revised manual of the NEO-PI-R and the NEO-FFI, a short form of the test, has been cited approximately 24,000 times since its publication.

Major Contribution: Since the NEO-PI-R and the NEO-FFI

Since the beginning of their collaboration, Costa and McCrae have published over 200 articles, books, book chapters together over 40 years. In 2003, the pair published the book *Personality in Adulthood: A Five-Factor Theory Perspective,* 2nd ed. The book examines the personality traits and dispositions of the individual and the impact these have on the processes of aging and behavioral development (McCrae & Costa, 2003).

   Costa has since argued that personality is a universal construct that is stable over time, particularly after the age of 30 and that an individual's core personality can be assessed using the five major factors, that in-turn reflect a unique constitution of individual facets. This intricate structure of personal habits lies at the core of a person's long-term behavior.

Acknowledgments and Awards

Paul Costa Jr. is an Adjunct Professor of Psychology within the Duke University Medical Center (DUMC) within the Department of Psychiatry and Behavioral Science. Among his many accomplishments, Costa has been elected to *Society of Multivariate Experimental Psychology*; he was elected President for the Division on *Evaluation, Measurement and Statistics*, Division 5 of the American Psychological Association (APA). In 2004, at the 112th Annual APA Convention, Costa was awarded the *Arthur Staats Award Winner Address on Unifying Psychology*, for his lecture on the FFM and the FFT.

   In 1993, Costa received the *Distinguished Contribution Award*, *Division 20* (Adult Development and Aging, APA) followed in 1994 by the *NIH Director's Award,* and then in 1995 through to 1997 was elected President of the *International Society for the Study of Individual Differences*. In 1997, Costa was elected to *Academy of Behavioral Medicine and Research Fellow*, Division 5 (Measurement, Evaluation and Statistics), for the APA and then in 1999 elected to the *Academy of Behavioral Medicine and Research*. In 2009, Costa was made a Fellow of the APA and was also awarded the *Jack Block Award* winner, for the Society of Personality and Social Psychology.

Conclusion: Personality and Individual Differences

Professor Paul Costa is a distinguished psychologist and research fellow within the world of personality and individual differences. His own work as well as his remarkable collaboration with Robert McCrae has provided the field with an immense amount of data and evidence that has significantly enabled researchers, psychologists, and clinicians to better understand the intricate details of the human personality.

See Also

FFM and Facets
Lewis R. Goldberg
Goldberg vs Costa/McCrae Five Factors
Oliver P. John
Revised NEO-Personality Inventory (NEO-PI-R)
Robert McCrae

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Robert McCrae

James Kean

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Background

Robert Roger McCrae was born on April 28, 1949 to Andrew and Eloise Elaine McCrae. He was born in the small town of Maryville, Missouri and was the youngest of three children. In 1971, McCrae completed a degree in philosophy at Michigan State University, after which he transitioned to the field of psychology for his graduate Masters studies at Boston University. As a young man McCrae had a passion for science and mathematics, and upon witnessing the combination of those two subjects by esteemed psychologist Raymond Cattell, McCrae became fascinated by the subject of personality and its assessment. Cattell used a statistical technique known as factor analysis to break down the facets of human personality and intelligence, providing researchers, clinicians, and psychologists a more precise and empirically based explanation for the core aspects of the human psyche. McCrae worked alongside psychologist Professor Henry Weinberg during his graduate studies at Boston University, who recognized but did not share McCrae's passion for personality research. In 1974, McCrae began his doctorate in Personality Psychology at Boston University, investigating the intricacies of the human personality, albeit without much assistance or kudos from colleagues. He regularly refuted the notion that an individual's personality was more of a reflection of their environment and that a person's personality was a malleable construct, capable of variation. Over time, McCrae's work would overturn these views, providing a statistically sound explanation for the construct and consistency of the individual personality. In 1976, McCrae completed his PhD.

In 1976, McCrae was hired as project director by fellow personality psychologist Paul Costa for a recently awarded grant in personality and smoking. Following this work, the pair were offered a position at the National Institute of Health within the Gerontology Research Center that forms part of the National Institute on Aging in Baltimore, Maryland. McCrae was awarded a position as Senior Staff Fellow. During this time, the pair worked tirelessly on the idea that the human personality is made up of "traits," a distinctive characteristic that an individual might exhibit differently from another. This type of research

contradicted the accepted thinking at the time that said traits were unable to explain the way the personality was constructed.

Robert R. McCrae currently resides in Massachusetts continuing to publish his research on the foundations of personality and individual differences (McCrae, 2018) as well as maintaining his passion for classical music and cooking.

Major Contribution: The Neuroticism-Extraversion-Openness to Experience Personality Inventory (NEO-PI)

In 1975, a professor at the Veterans Administration Outpatient Clinic in Boston by the name of James Fozard, appointed a new research assistant – Robert McCrae. It was not long before McCrae was further referred to another psychologist, but this time, one with a distinct interest in the assessment and perception of the human personality. In 1976, Professor Paul Costa hired the recent doctoral graduate student Robert McCrae as a project director for a Smoking and Personality Grant. After working side by side for two years on the project, the pair had developed a working relationship that would last well into the new century, and continues today. In the same year, the pair published their first article together investigating the personality composition of 472 males using the Cattel 16-Personality Factor test (16-PF; Cattell et al., 1970). The publication titled *Age, Anxiety and Self-reported Health*, revealed that those people who were rated as *anxious* reported increased levels of health problems in younger and middle-aged cohorts, but not in the older cohort. The conclusion was that older males do not waste any time dealing with health issues due to the limited amount of lifetime they had left and through this symptom denial, reductions in the level of anxiety were experienced.

During their time on the Veterans Administration's Normative Aging Study, the team had access to a sizable database, allowing them to investigate the similarities and differences in personality structure of a large cohort. This led to a pivotal publication in the development of their personality theory – *Age Differences in Personality Structure: A Cluster Analytic Approach* (Costa & McCrae, 1976). The publication applied the factor analysis work by Raymond Cattell, to his 16-PF test, to break down the factors into weighted components, which included the dimension's anxiety-adjustment and introversion-extraversion. The previously established traits of Neuroticism (N) and Extraversion (E) did not comprehensively explain all aspects of the individual personality structure. The factor analysis work uncovered one other domain known as Openness to Experience (O). This led to the first ever version of their personality inventory including these three factors (Costa & McCrae, 1978). This was denoted as the Neuroticism-Extraversion-Openness Inventory (NEO-I) (Shock et al., 1984).

After 1978, Costa and McCrae continued to work in Baltimore, Maryland within The National Institute on Aging's Gerontology Research Center. As they continued to break down the structure of personality, the pair located and described two more unique factors, denoted Agreeableness (A) and Conscientiousness (C) (Costa & McCrae, 1985). In 1985, this led to the inventory being renamed the NEO-Personality Inventory (NEO-PI) and contained each of the five traits we know today – Neuroticism, Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. This also went on to be known as the Five-Factor Model (FFM). Within the model, each trait (factor) was broken down into six

facets with the test totaling 181-items including validation questions confirming the truthfulness of the answers provided by the participant. Research using the inventory indicated that each factor was consistent and useful in understanding the depth of the personality of the person completing it. In 1992, the inventory was revised with six facets per factor, 30-facets in total, and it became one of the only personality inventories to measure all five of the now well-established trait factors (Costa & McCrae, 1992). The revised manual of the NEO-PI-R and the NEO-FFI, a short form of the test, has been cited approximately 24,000 times since its publication.

Major Contribution: Since the NEO-PI-R and the NEO-FFI

Since the beginning of their collaboration, Costa and McCrae have published over 200 articles, books, and book chapters together over 40 years. In 2003, the pair published the book *Personality in Adulthood: A Five-Factor Theory Perspective,* 2nd ed. The book examines the personality traits and dispositions of the individual and the impact these have on the processes of aging and behavioral development (McCrae & Costa, 2003).

McCrae's work on the correlations of personality at a cultural level highlighted some unique findings in a country's power index – a metric that describes the distribution of power and wealth between individuals of that country. This piece of anthropological work was carried out by McCrae in collaboration with the creator of the term Power-Distance Index (PDI) Professor Geert Hofstede. The findings indicated that countries low in extraversion and high in conscientiousness are much higher in PDI, that is, they tend to rely on a distinct hierarchy of authority (Hofstede & McCrae, 2004). This method of research provides distinct insights into the way countries tend to operate at a national level.

McCrae continues to argue that the individual personality is a stable, universal construct. This intricate structure of personal habits, facets, and traits lies at the core of a person's long-term behavior. McCrae's work has received approximately 130,000 citations with over 50,000 citations in the past five years.

Acknowledgments and Awards

Professor Robert R. McCrae was awarded the National Merit Scholar in 1967 at the beginning of his university degree. He was nominated for a Woodrow Wilson award in 1971. In 1984, he was awarded a fellowship for the American Psychological Association (APA) (Division 20), for the APA in 1991, for the APA (Division 5) in 2006 and lastly for the APA (Division 8) in 2016. In 1992, he obtained a fellowship of the Gerontological Society of America. In 2013, McCrae was awarded the Bruno Klopfer Award as part of the Society for Personality Assessment as well as the Jack Block Award for the Society for Personality and Social Psychology. Finally, on two separate occasions, he was designated Distinguished Lecturer for G. Stanley Hall at Johns Hopkins University and Multicultural Psychology for Michigan State University.

Robert McCrae has also sat on several journal and societal committees as well as being a key reviewer for several significant periodicals.

Conclusion: Personality and Individual Differences

Professor Robert McCrae is a distinguished psychologist and research fellow within the world of personality and individual differences. His own work on cultural differences and stability as well as his remarkable collaboration with Professor Paul Costa has provided the field of personality study with a significantly better understanding of the intricate details of human personality.

See Also

FFM and Facets
Goldberg vs Costa/McCrae Five Factors
Lewis Goldberg
Oliver P. John
Revised NEO-Personality Inventory (NEO-PI-R)
Robert McCrae

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Ed Diener

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Ed Diener, PhD, (born 1946) pioneered the study of subjective well-being (SWB; a combination of one's satisfaction with life, frequency of positive emotions, and infrequency of negative emotions) by creating sound measures and exploring the relationship between SWB and a wide range of other consequential personal attributes (Diener, Suh, Lucas, & Smith, 1999). Additionally, Diener championed the study of SWB on a global level (Diener, 2000), exploring cultural influences on well-being, as well as the relationship between income and SWB. At the time of this writing, Diener has contributed over 340 scholarly works, that have been cited 136,000+ times (according to Google Scholar) leaving an enduring mark on the field of psychology and establishing subjective-well-being as a respected field of study. Diener is currently the Joseph R. Smiley Professor of Psychology Emeritus at the University of Illinois, where he has been a faculty member since 1974, and is also a professor at the University of Utah and the University of Virginia, as well as a Senior Scientist at the Gallup Organization.

Personal Life

Diener was born in Glendale, CA in 1946, the youngest of six children. His love of family and appreciation for the values his parents instilled in him permeate his autobiography, which he calls a "periodic update" due to his life still having many years to unfold (Diener, 2008). He praises his parents and siblings for giving him an early sense of meaning in life and instilling in him a desire to help the world in some way. His dad was a successful farmer and although his parents were wealthy, Diener states that money was never his parents' end goal. Instead, they sought to perform good works whenever possible, donating their time and resources to various charities, a trend which you can see in Diener's life as well.

Diener describes himself as an intensely curious person, an attribute that has fueled his motivation and productivity in his research career, but also got him into some trouble as a child. He notes that one time he threw a rock into a swarm of bees just to see what would

happen and, unsurprisingly, he did not like the answer (Diener, 2008). Diener was a sickly child, which meant that he spent a lot of time indoors indulging his curiosities with activities like rolling a dice over and over again and teaching himself how to calculate probabilities. Diener showed an early love of math and statistics, which is apparent in his extensive body of empirical papers. Diener's father also had a love of numbers and he had hoped that Diener would apply his curiosities to the agricultural field as he had done, but Diener states that he was always drawn to uncertainty and thus the field of psychology, with its less predictable nature, drew him in (Diener, 2008).

During high school, Diener met the love of his life, Carol, and they dated for four years before getting married during their junior year at Fresno State (also known as California State University, Fresno). They had their first children two years after that in 1968, the fall after they graduated from college (twins, Marissa and Mary Beth) and their son, Robert, in 1972, while Diener was in graduate school. Diener describes parenting as a rewarding experience – so rewarding that he and Carol decided to foster five children (all about 10 years old) and then ultimately adopt two of them, Kia and Susan, for a total of five children (Diener, 2008).

After graduating from college, Diener was drafted to go to Vietnam, but registered as a Conscientious Objector. In place of military service, the draft board assigned him to two years of working at a psychiatric hospital. At the time, Diener thought he wanted to go into clinical psychology, so he was excited that the assignment would give him the necessary experience to be a competitive applicant for PhD programs. Instead, Diener learned that he did not enjoy working with clients. Through a variety of promotions, Diener found himself as the administrator of a new hospital, which also taught him the valuable lesson that he did not enjoy being an administrator. Equipped with these lessons and a continuing love of the field of psychology, Diener realized his true passion was research and he obtained a research-based PhD in Psychology at the University of Washington (1970–1974).

In 1974, Diener took a tenure-track position at the University of Illinois, where Carol started a PhD program in clinical psychology. Diener has said that one solution to balancing family with research was to incorporate family into his work. He often took his children to his lab and talked to them about psychology around the dinner table. All three biological children ended up with careers in psychology. Diener jokingly says that he and Carol think it "must be genetic" but he notes an alternative explanation that Kia and Susan did not come into their family until they were 10 years old, thus missing some of the early indoctrination (Diener, 2008).

Diener has now engaged in over four decades of impressive scholarship at the University of Illinois (much of which is detailed later). In addition, Diener joined the Gallup Organization as a Senior Scientist in 1999 and joined the faculty of the University of Utah and the University of Virginia in 2015.

Early Research Career: Deindividuation

Diener had an early interest in happiness and its correlates. At Fresno State, he asked whether he could assess the happiness of migrant farm workers for a course project. His professor rejected his proposal on two accounts: (1) farm workers are not happy, and (2)

there is no way to measure happiness. Appropriately, Diener conducted his research project on conformity (Diener, 2008). Given the prevailing notion that happiness was unmeasurable and flaky, Diener did not pick the topic back up until after he had tenure at the University of Illinois.

During graduate school at the University of Washington, Diener had three main mentors. Irwin G. Sarason and Ronald E. Smith taught Diener the basics of personality psychology and multimethod measurement, and with them he wrote a review paper during the person-situation debate demonstrating that, even when situations affect behavior, personality often simultaneously affects behavior, as does the interaction between personality and situation variables. With Scott E. Fraser, Diener worked on a series of deindividuation studies, which formed the crux of Diener's pre-tenure empirical work.

Because of the riots of the 1960s and the continuing anti-Vietnam War demonstrations, Diener was interested in crowd behavior and more specifically in the idea of deindividuation – the loss of self-regulation in groups. In a series of elaborate and cleverly designed studies, Diener and colleagues systematically tested the prevailing ideas about what conditions led to deindividuation, what feelings and thoughts composed an internal deindividuated state, and whether the internal deindividuated state could be linked to disinhibited behavior (e.g. antinormative behavior like aggression and stealing or just odd behavior like finger painting with one's nose; e.g. Diener, 1979).

To test possible causes of aggression, Diener created the "beat the pacifist" dependent variable in which, after an experimental induction, he directed participants to enter into a room with a confederate sitting on the floor and instructed them to "do various things to him" with provided materials (e.g. crumpled up newspaper balls for throwing, a large bowl of rubberbands for shooting or snapping, Styrofoam swords for hitting). Telling participants that they would not be responsible for their actions, justifying the activity by saying it was a game, being primed with an aggressive video, and exercise-induced arousal all increased aggression. In another clever paradigm, Diener and colleagues manipulated anonymity and felt responsibility among Halloween trick-or-treaters in a naturalistic experiment. Trick-or-treaters were instructed to only take one candy before the experimenter ostensibly left them to their own devices. Children who were left anonymous (not asked their name or where they lived) were more likely to take extra candy, as were children who appeared in groups versus those who appeared alone. If all groups members were left anonymous and the experimenter placed all blame on one child (altered responsibility), transgression rates were the highest (80%).

Although Diener and colleagues' research supported the presence of situational variables that increased disinhibited behavior, he was not reliably able to relate these external conditions to an internal deindividuated state and, in turn, was not reliably able to relate an internal deindivudated state to the disinhibited behavior. Given these mixed findings, Diener and colleagues called for clearer definition and measurement of what constitutes disinhibited behaviors and the internal state of deindividuation. For example, he called for research and conceptual clarity on the potentially differential effects and precursors of an internal self-awareness versus a public self-consciousness, a challenge that other researchers accepted. In 1979, Diener earned tenure and changed the focus of his research to subjective well-being.

Subjective Well-Being

Diener describes himself as a sensation seeker and a noncomformist, which led him to much mischief in his childhood and beyond, but also gave him the willingness to explore unpopular topics that he found interesting (Diener, 2008). When Diener started working on well-being research, it was not viewed favorably by the research community – it was too fluffy and unmeasurable. Diener notes that his promotion to full professor was blocked for a year or two because of these negative attitudes toward well-being research (Diener, 2008). Nevertheless, during Diener's sabbatical year in 1980, he spent a year reading the 18 books and 220 articles he could find on subjective well-being (SWB) and wrote a review paper published in *Psychological Bulletin* assessing the state of the field and covering important issues that Diener would study over the years such as the theories, measurement, causal influences, and demographic correlates of SWB. Throughout Diener's work on SWB, he focused on sound and rigorous empirical methods to lend legitimacy to the science of SWB and its importance as a field of study. Although Diener's contributions to the science of SWB are too numerous to name, the following is a sampling of his contributions.

Theories and Measurement of Well-being

Diener has provided theoretical and empirical support for the predominant definition of SWB as a broad category composed of three independent but related constructs: a cognitive evaluation of one's life (life satisfaction), frequency of positive affect, and frequency of negative affect (Diener et al., 1999; Lucas, Diener, & Suh, 1996). To further the science of SWB, Diener created and validated the most commonly used scales to measure these constructs, with his Satisfaction with Life Scale being cited over 15,000 times (Diener, Emmons, Larsen, & Griffin, 1985) and his affect scales also being widely used (e.g. Diener & Emmons, 1985; Diener et al., 2009). While SWB research came under scrutiny for using primarily self-report methods, Diener and colleagues provided empirical evidence that self-reports of well-being were not simply response artifacts of social desirability or current mood, but rather could accurately reflect the stable trait of life satisfaction, and relate well to various non-self-reports of SWB across construct validation studies (e.g. Lucas et al., 1996). This rigorous validation of SWB measures set the foundation for SWB being a respected area of research.

Personality and Well-being

Diener and colleagues replicated and explored the relationship between extraversion and SWB, and also differentiated SWB from traits like optimism and self-esteem (Lucas et al., 1996). Researchers theorized that extraverts seek more social interactions, which in turn boost their well-being, but Diener and colleagues found that people relatively higher on extraversion were happier than their less extraverted peers whether they were interacting with others or alone, whether they lived alone or with others, whether they lived in rural or metropolitan areas, and whether they worked in social or nonsocial occupations. This evidence supported the idea that extraverts may not have higher SWB simply because they seek out more social situations, but instead because they have a relatively stronger reward system. In addition, Diener and colleagues found that personality may influence well-being

because it affects what information about our experiences is chronically accessible to people when making evaluations of their lives. Thus, Diener and colleauges sought to not only understand the relationship between personality and SWB, but also the process by which personality acts on SWB.

Income and Well-being

The nuanced relationship between income and well-being at various levels of analysis has been a topic of much scholarly analysis and Diener and colleagues have contributed greatly to the scientific understanding of this phenomenon, elucidating measurement issues within the field. Diener and Biswas-Diener (2002) reviewed the evidence corresponding to the Easterlin Paradox – the hotly debated finding that although income is related to SWB both within and across countries, increases in wealth over time do not correspond to relative increases in SWB – and called for future work to explicate this puzzle. Over the years, researchers debated the presence of the Easterlin Paradox, with some finding evidence supporting its existence and others not. Then, Diener, Tay, and Oishi (2013) produced empirical work that explained many of the divergent findings in the literature. Specifically, in an analysis of 135 countries, they found that life satisfaction does rise and fall with changing GDP, but that happiness, positive affect, and negative affect do not, indicating that the paradox may depend on what type of SWB measure a researcher uses. Furthermore, although many studies use GDP as a measure of wealth, in an analysis of average household income as the wealth indicator, Diener and colleagues (2013) found that all measures of SWB (life satisfaction, happiness, positive affect, and negative affect) showed expected changes with income. Thus, perhaps some of the conflicting findings were due to using a wealth metric (GDP) that did not necessarily trickle down to the average person.

Cultural Influences on Well-being

Diener and colleagues have performed a great deal of research on the predictors and measurement of SWB across and within-cultures, calling for the recognition of cultural-specific and universal norms that affect the experience of emotions and life satisfaction and the relationship between the two. In regard to universal norms, Diener has found that basic and psychological need fulfillment, income, individualism, human rights, environmental health, peace, and societal equality relate to higher SWB across nations (e.g. Tay & Diener, 2011). In regard to cultural-specific norms, Diener and colleagues found that freedom and self-esteem were predictors of SWB in individualistic, but not collectivistic nations, and cultural norms surrounding SWB were predictive of SWB in collectivistic, but not individualistic nations. Similarly, Oishi and Diener (2001) found that independent goal pursuit increased the benefit of goal attainment on SWB in individualistic, but not collectivistic cultures, whereas inderdependent goal pursuit (goals to please parents and friends) increased the benefit of goal attainment in collectivistic, but not individualistic cultures. In addition to large, national surveys of well-being, Diener's interest in culture and well-being has also prompted an interesting collaboration with his son, Robert in which they explore well-being among hard-to-reach populations who are underrepresented in research (e.g. people in the slums of Calcutta)

Hedonic Adaptation

Because of the relatively small amount of the variance in individual differences in SWB accounted for by life circumstances (estimates are usually less than 10%; Diener et al., 1999), the relative stability of SWB over time, and the influences of personality and genetics on SWB, many researchers have suggested that people simply adapt to any hedonically relevant event in their lives, reverting back to a predefined happiness "set-point" and making efforts to improve happiness a fool's errand. With a close review of the literature and empirical contributions, Diener and colleagues were able to demonstrate that people do not adapt to all circumstances and that levels of SWB can change (Diener, Lucas, & Scollon, 2006). Specifically, in one study he noted that although the majority of people remained relatively stable in their SWB over a 5-year period, 24% of people changed significantly. Echoing these results, although on average people tend to adapt to life circumstances, there is wide variability in adaptation among people and events. For example, not everyone adapts to the SWB boost of marriage and, on average, people who have become unemployed or widowed never quite recover from this blow. Furthermore, although researchers note that life circumstances often show a relatively small correlation with SWB, the fact that long-term life circumstances (e.g. the GDP or life expectancy of your country) – and not just recent changes in life circumstances – correlate with SWB at all is evidence of non-adaptation. Thus, as he did on multiple other topics, Diener and his colleagues investigated and uncovered the nuance in the area of hedonic adaptation, revealing that adaptation was not inevitable and SWB can meaningfully change.

Correlates and Outcomes of Well-being

In a highly cited paper, Myers and Diener (1995) answered the question, "Who is happy?" noting the surprising findings that demographic variables such as age, sex, and race show little relationship to SWB. Regardless of these demographic variables, relatively happy people have stronger romantic and other social relationships, are more extraverted and agreeable, and less neurotic than their less happy peers. In one study, participants with the highest levels of happiness again had the strongest relationships and were also more likely to volunteer, but they were slightly less successful in terms of income, education, and political participation than their peers who scored one point lower on SWB (8 or 9 on a 10-point happiness scale). Thus, once moderate levels of happiness are reached, the "best" level of happiness for other positive life outcomes may depend on one's values and goals.

Extensive evidence also supports that not only is SWB related to positive life outcomes, it also precedes and even causes them. In a meta-analysis of 225 studies, Lyubomirsky, King, and Diener (2005) demonstrated the positive effects of SWB on domains such as work, relationships, and health. Given the positive consequences of SWB, Diener (2000) advocated for nations to measure SWB and at least partially evaluate their policies based on how they affected the SWB of their population. The recommendation for a national index of SWB has now been adopted by over 40 nations and researchers are increasingly exploring policy questions related to SWB.

Future Work

On Diener's CV, updated on May 25, 2016, he has 29 scholarly works listed as submitted or in preparation, so Diener's already immense contribution to psychology is still unfolding.

Awards and Service

Diener has received too many awards to list in this entry. A select few are: The Distinguished Scientific Contribution Award for Basic Research from the American Psychological Association, the William James Fellow Award for outstanding contributions to scientific psychology from the Association of Psychological Science, the Distinguished Quality of Life Researcher Award from the International Society of Quality of Life Studies, the Jack Block Award for Distinguished Career Contributions to Personality Research from the Society of Personality and Social Psychology, and various teaching awards. Diener is also past president of three professional organizations, the International Positive Psychology Association, the Society of Personality and Social Psychology, and the International Society for Quality of Life Studies. Additionally, Diener was the founding editor of *Perspectives on Psychological Science* and also served as an editor for the *Journal of Personality and Social Psychology* and the *Journal of Happiness Studies*.

Mentorship and Philanthropy

Living out the prosocial values instilled in him by his parents, Diener uses his time and resources to help others. Although many of Diener's good deeds are likely not a matter of the public record, a few notable accomplishments are. First, Diener has mentored innumerable graduate and undergraduate students both directly as their advisor and teacher and indirectly through his writings and talks, helping them advance their careers. A few years ago, Diener stated that he had published 130 scholarly works with 55 students and former students and he has three students with whom he has published more than 20 papers each (Shige Oishi, Eunkook Suh, and Richard E. Lucas; Diener, 2008). He also notes that he as a high C^2 index for "collaboration" in scholarly works, having 10 scientists with whom he has generated 10 or more publications, and 100 different co-authors overall.

Driven by the belief that knowledge should be made accessible to all, Diener and his wife, Carol, created and financed The Diener Education Fund, a 501(c)(3) non-profit organization with the mission of better serving the needs of students and professors within higher education. Their mission is carried forward in the Noba Project (www.nobaproject.com), a free online platform that provides high-quality, flexibly structured textbooks to students that are written by experts in the field of psychology.

In his autobiography, Diener sends a beautiful message to psychology students that underlines his belief in prioritizing family and good works while still being excellent researchers: "I want to ensure that young, ambitious psychologists do not forget the point that one should not excel at their jobs at the expense of being decent human beings" (Diener, 2008, p. 7).

See Also

Jack Block
Life Satisfaction
Personality and Positive Psychology

Personality and Well-Being
Positive and Negative Affective States
Subjective Well-Being, Assessment

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Erik H. Erikson

Bernardo J. Carducci

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Erik H. Erikson was born on June 15, 1902, near Frankfurt, Germany. His birth was the result of an extramarital affair by his mother. His parents, both Danish, separated shortly before his birth. Wishing to be near her close friends, Erik's mother moved to Karlsruhe, Germany. When Erik was 3 years old, his mother married a local pediatrician, Theodore Homburger, who successfully treated Erik for a childhood disease. Dr. Homburger adopted Erik and gave him his last name. But in what Erik would later call an act of "loving deceit," his parents concealed his adoption for several years. Erik used *Homburger* as his surname until shortly before immigrating to the United States in 1933. He then adopted the surname of *Erikson,* which means "son of Erik."

Although his stepfather was Jewish, Erik was not easily accepted by his Jewish peers because of his tall, blond, Aryan appearance. At the same time, he was rejected by his German peers because they knew he was Jewish. Having to confront being adopted and then being rejected by his peers may have affected Erikson's later concerns with what he was to call the "identity crisis."

Although Erikson was not a particularly good student, he did show some promise in history and art. After graduating from high school and rejecting his stepfather's suggestions to go to medical school, Erik traveled around central Europe for a year. He then returned to Karlsruhe to attend art school. But he quickly became restless again and, until the age of about 25, spent time wandering through Italy and Germany.

In 1927, an old classmate invited Erikson to join him as a Montessori instructor at a private school run by Anna Freud for children whose parents were receiving psychoanalysis from her father. After Erik had worked at the school for a short time, Anna asked him to consider beginning analysis with her and becoming a child analyst himself. During his training with Anna, which lasted from 1927 to 1933, Erik became a very close friend of the Freud family.

Over the next few years, Erikson distinguished himself as a key figure in psychoanalysis through some of his early publications demonstrating how children could become more aware of themselves and their feelings through artistic expression. Thus, with just a high

school education and a diploma as a Montessori teacher, Erikson combined his early talents in art and history to make a unique contribution to psychoanalysis by trying to understand emotional development during childhood.

On April 1, 1930, Erikson married Joan Serson. In 1933, Erikson moved his wife and two sons to Boston, where he became a practicing children's analyst and accepted a position at the Harvard Medical School. At the same time, he began working on a PhD in the psychology program at Harvard. But realizing that he was not suited for formal education, Erikson withdrew a short time later – after failing his first course. In 1936, he accepted a position at the Yale Institute of Human Relations. In 1938, he spent some time studying child-rearing practices among the Sioux Indians in South Dakota.

In 1939, Erikson moved to San Francisco and continued his practice as a children's analyst. In 1942, he became a professor of psychology at the University of California at Berkeley; but he was released in 1950, along with other faculty members, for refusing to sign a loyalty oath. From 1951 to 1960, Erikson lived in Stockbridge, Massachusetts, where he served as a senior staff member at the Austin Riggs Center, a private hospital for disturbed adolescents, and simultaneously held several other part-time faculty appointments at neighboring institutions.

In 1960, he returned to an academic appointment as a lecturer and professor of human development at Harvard. Although he never actually received a college or university degree, Erikson was considered a very strong intellectual by his colleagues and a very popular teacher by his students. His book, *Gandhi's Truth* (Erikson, 1969), won a Pulitzer Prize and the National Book Award in philosophy and religion. Although he retired in 1970, Erikson continued to be a productive researcher and writer. His last book addressed personality growth during the later years of life (Erikson, Erikson, & Kivnick, 1986). Erikson died on May 12, 1994, in Harwich, Massachusetts.

The Nature and Expression of Personality Development

Erickson is best known for the conceptualization of his eight stages of human development. A central feature of Erickson's viewpoint of personality was the development of the ego. Characteristic of ego psychology (Westen & Gabbard, 1999), Erickson proposed the ego as the core of the healthy personality and being responsible for creative thinking, artistic expression, logical reasoning, and joyful expression of emotions. As the motivating source of personality, Erikson proposed that the ego operates in a manner characterized by psychosocial development. Psychosocial development refers to Erikson's belief that the ego develops as it successfully resolves crises that are distinctively social in nature throughout life and are organized into eight developmental stages (Erikson, 1950, 1963). These stages of development are assumed to occur in a specific sequence and build upon each previous stage (Whitbourne, Zuschlag, Elliot, & Waterman, 1992). The sequence is based on the resolution of a particular psychosocial crisis that requires achieving a balance between the needs of the individual (i.e. *psycho-*) and the expectations of society (i.e. *-social*). With the successful resolution of each of the psychosocial crises comes the acquisition of a basic virtue. Basic virtues are attributes of character strengths (e.g. hope) that the ego can use to help when resolving subsequent crises (e.g. pursue future life plans) throughout life.

The Eight Stages of Psychosocial Development

The first psychosocial crisis of trust versus mistrust occurs during the first year of life, which is based on an infant's uncertainty about the world in which he or she lives. To resolve these feelings of uncertainty, the infant looks to the primary caretaker for stability, consistency, familiarity, and continuity in the nature of these experiences. The extent to which the child resolves this sense of uncertainty in the direction of trust will result in the ego acquiring the basic virtue of hope (i.e. faith in the future).

The second psychosocial crisis of autonomy versus shame and doubt appears sometime around the end of the first year of life and continues through the third year. During this period, the child discovers that he or she has many skills (e.g. putting clothes) and abilities (e.g. manipulating toys), which serve to illustrate the child's growing independence and sense of autonomy. As opportunities to demonstrate such skills and abilities arise, the child will begin to develop a sense of mastery over its environment and resolve this crisis in the direction of autonomy and acquire the basic virtue of willpower (i.e. self-confidence) (cf. Kelly, Brownell, & Campbell, 2000).

The third psychosocial crisis of initiative versus guilt occurs during the fourth and fifth years of life. During this period of life, the principal activities involve the child going to school and, for the first time, regularly interacting with a large number of people (e.g. classmates) and exploring interpersonal abilities through play (e.g. deciding what and how to play). As opportunities to exercise these interpersonal skills arise, the child will begin to develop a sense of critical thinking and resolve this crisis in the direction of initiative and acquire the basic virtue of purpose (e.g. self-directed behavior) (cf. Goencue, Mistry, & Mosier, 2000).

The fourth psychosocial crisis of industry versus inferiority occurs in children from the ages 6 through 11. During these years, the child is in school learning to acquire and develop the basic technical skills (e.g. reading, writing, and math) needed to be a productive individual in society. As opportunities to practice these skills arise, the child will begin to develop a sense of how to use these skills in more unique and personal ways (e.g. read and write about favorite activities) and resolve this crisis in the direction of industry and acquire the basic virtue of competency (e.g. sense of self-efficacy).

Ego identity versus role confusion is the fifth psychosocial crisis and lasts from late adolescence to young adulthood (i.e. 18 to 24 years of age). It is during this stage that the individual begins to make the transition into adulthood. Part of this transition involves an initial attempt to establish a sense of ego identity – creating a sense of belonging to a community through friends (e.g. dressing similarly), leisure activities (e.g. gaming club), school (e.g. selecting a college major), and/or work (e.g. job title). Failing to establish a sense of identity within society can lead to what Erikson referred to as role confusion. Such feelings of role uncertainty can create an identity crisis, resulting in the young adult experimenting with different life-style choices (e.g. switching college majors or working at different jobs) in an attempt to identify what he or she enjoys doing or wants to be in the future (Marcia, Waterman, Matteson, Archer, & Orlofsky, 1993). As opportunities to explore different identities and identify with different communities arise, the young adult will begin to develop a sense of belonging and resolve this crisis in the direction of ego identity and acquire the basic virtue of fidelity (e.g. commitment to the beliefs of a group or cause).

Intimacy versus isolation is the sixth psychosocial crisis and spans the period of young and middle adulthood (e.g. late twenties to middle forties). Upon establishing a sense of social identity, the individual is in a better position to begin the task of establishing a meaningful emotional relationship with another person by merging his or her identity with that of another. The individual who is able to integrate his or her identity without having to worry about its loss will resolve this crisis in the direction of intimacy and acquire the basic virtue of love (e.g. the strength and support of a significant other).

Generativity versus stagnation is the seventh psychosocial crisis and corresponds to the period of middle adulthood (e.g. 45 to 65 years of age) during which the individual must realize that beyond just the responsibility of securing his or her own ego development, it is also important to promote the ego development of the next generation of young people by sharing with them one's wisdom and strengths through such activities as parenting, political action, volunteering, and mentoring (cf. Lachman, 2004; Peterson, Smirles, & Wentworth. 1997). Individuals who share their knowledge for the benefit of future generations resolve this crisis in the direction of generativity and acquire the virtue of care (e.g. preparing others to achieve success). While Erikson focused on the notion of generativity as being primarily a midlife issue, examinations of personality characteristics across the lifespan suggest that expressions of conscientiousness appear in young adulthood and continue well into old age (cf. Roberts, Walton, & Viechtbauer, 2006).

Ego integrity versus despair is the last psychosocial crisis and appears in late adulthood (e.g. ranging from about 65 years until death) during which the major developmental task is for the individual to reflect on how his or her ego has developed and review the choices that have been made over the years. An individual who can reflect on the events of the past seven stages with a sense of satisfaction will resolve this crisis in the direction of ego integrity and acquire the basic virtue of wisdom (e.g. inspiring others to live fully).

Applications of Erikson's viewpoint of personality include play therapy to help children deal with emotional trauma and the use of psychobiography to study the personalities of historic figures. Although support for Erikson's stage of personality development exists (cf. McAdams, 1999), critics of Erikson's viewpoint and other developmental-stage theories of personality provide evidence suggesting a lack of discrete stages of adult personality development (Costa & McCrae, 1997).

See Also

Erikson's Stages of psychosocial development

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Hans J. Eysenck

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Hans Juergen Eysenck (born March 4, 1916, Berlin; died 4 September, 1997, London) was one of the most influential personality psychologists of the twentieth century. He was a champion of the scientific approach to psychology in general and to personality in particular. His approach emphasized the integration of basic psychological theory with an experimental approach to the study of individual differences. During his lifetime, his work on behavior genetics, ability, dimensions of personality, and a biological basis to personality went from being disbelieved and controversial to accepted wisdom for the field.

Eysenck was born in Germany to parents both of whom were renowned actors. Because they were frequently on tour, the young Eysenck was raised mainly by his maternal grandmother. After finishing secondary school in 1934, he realized that an academic career would require joining the Nazi party, which he despised. Thus, at age 18, he emigrated to the UK where he did his undergraduate and graduate work at University College of London (UCL). Although most interested in physics, he did not have the necessary course work for the entrance exam for physics and instead pursued an undergraduate degree and subsequent PhD in psychology.

In contrast to the emphasis on experimental psychology at Cambridge, the so called "London School" of psychology emphasized individual differences. UCL had been the home of Charles Spearman and subsequently, Cyril Burt. Both were talented psychometricians heavily influenced by Francis Galton's emphasis on the study of individual differences and the inheritance of personality and ability. Despite some initial language difficulties, Eysenck fitted in very well at UCL and took a first-class undergraduate degree working with Burt before continuing on for his PhD also under Burt's supervision.

Because he was a German national, he was not allowed to join the RAF or other military service and after a brief stint spotting planes for the Air Raid Precaution Services, he took his first appointment after his PhD as a research psychologist at the Mill Hill hospital. Mill Hill was the war time home of the Maudsley Hospital which eventually became the Institute of Psychiatry (IoP) where he spent the rest of his career. Working at the IoP provided him with a golden chance to analyze the data already collected on the numerous

patients. His subjects primarily were soldiers diagnosed with various psychiatric disorders. In contrast to other quantitative personality researchers who used factor analysis of personality ratings or self-reports, Eysenck analyzed behavioral ratings, psychiatric diagnoses, and experimental measures such as those of hypnotic suggestibility. His goal was to marry the best of experimental psychology with the best of psychometrics. His first book, *Dimensions of Personality* (1947) did just that. Based upon his factor analytic results, Eysenck proposed support for a general factor of neurosis with a second, bipolar factor that he considered introversion-extraversion. Even though based upon behavioral measures rather than the traditional psychiatric or clinical ratings or self report inventories, this was a very influential work. He introduced a hierarchical model of high level "types" which could in turn be related to a lower-level factor structure.

Eysenck continued to integrate what he perceived to be the best theories from experimental psychology with his factor analytic results. At the time, experimental psychology was dominated by those concerned with animal and human models of learning. Thus, his subsequent book proposed a biological basis of personality based upon classic learning principles, *The Dynamics of Anxiety and Hysteria* (1957). This volume met with serious criticism, however a subsequent model based upon individual differences in arousal, *The Biological Basis of Personality* (1967) was much better received and continues to be well cited.

The 1967 volume was an ambitious attempt to relate introversion-extraversion to the arousal dimension being studied by experimental psychologists such as Donald Broadbent. Broadbent and his colleagues had noticed the effects various stressors had on task performance. Arousal was seen as the common pathway linking multiple environmental or experimental manipulations (sleep deprivation, caffeine, alcohol, time on task, noise) with cognitive performance. In addition, arousal was related to individual differences in sensory thresholds (including those to pain and noise) and the patterns of findings was similar to those relating individual differences in introversion-extraversion to task performance.

Reflecting the current physiological thinking, the proposed biological mechanisms were the ascending reticular activating system and other parts of the limbic system. Eysenck proposed that introverts had higher resting levels of cortical arousal than did extraverts. With the assumption of an optimal level of arousal, the sensation seeking behavior of extraverts was explained as an attempt to compensate for their lower resting levels. This model, based upon an earlier hypothesis of Wundt, could explain the seemingly paradoxical effect of amphetamines in which the administration of a CNS stimulant leads to calming among hyperactive youth, as well as the tendency of extraverts to smoke and take risky drugs.

The arousal model of Introversion-Extraversion dominated the personality research agenda for the next decade. More importantly, by emphasizing the genetic and biological bases of behavior, Eysenck and his European colleagues kept the study of personality alive while it was under serious attack in the United States.

Eysenck's arousal theory and his later theories influenced and were influenced by Jeffrey Gray whose theories of anxiety and impulsivity reflected individual differences in sensitivities to cues for reward and punishment. As is true of any developing scientific theory, many of Eysenck's ideas have been shown during the subsequent 40 years to be wrong or to be oversimplifications, but his general emphasis upon integrating genetic and

biological principles within the study of individual differences has become the standard model of personality.

Eysenck and Gray took a very different approach to the study of personality than was common in the United States. They both emphasized a "bottom up" approach, going from basic physiological principles and looking for behavioral correlates and consequences. This was in contrast to the lexical approach favored by many in the US. In addition, both Eysenck and Gray emphasized that personality had to have a biological basis which then interacted with social experience to lead to the surface traits observed by others. Eysenck's continued emphasis upon biological and genetic mechanisms were in stark contrast to the general attack on trait theory that swept the US in the 1970s.

Eysenck believed that science was a self-correcting process and that good ideas would supplant weak ones. His 1985 book *Personality and Individual Differences: A Natural Science Approach* (written with his son, Michael) reviewed evidence in favor and opposed to his theories and suggested that personality was indeed moving toward becoming a paradigmatic science.

In cooperation with a number of other individual differences psychologists interested in the study of intelligence, the biological basis of personality, and behavior genetics, Eysenck founded the *International Society for the Study of Individual Differences* and was its first president. In addition, he was the founding editor of the journal *Personality and Individual Differences*. As evidence for his trust in the scientific process, at the first ISSID meeting after he critically reviewed the differences between his and Gray's models of personality he cheerfully announced that Gray would be his successor at the Maudsley.

In addition to his theoretical contributions to the study of personality, Eysenck was also notorious for his strong critique of conventional psychoanalytic therapy and his advocacy for what is now known as behavioral therapy. Although mild mannered interpersonally, his writings could be bitter critiques of the works of others. He wrote not just for the scientific community but also wrote several very influential critiques for the general public. Eysenck did not avoid controversy, and probably thrived on it. From his political analysis of the similarities of the far right and the far left, to his critiques of psychotherapy, to discussions of racial differences in intelligence, he was always willing to take unpopular views.

Going beyond addressing many important theoretical and scientific issues, Eysenck also utilized his empirical approach to studying personality to the application of many significant social issues and concerns. Of particular importance was his research in the study of medicine (cf. Nias, 1997) in which he examined the relationship between personality factors and stress of individuals suffering from lung cancer to identify what he labeled "the cancer-prone type" (p. 55), which he summarized in his book *Smoking, Personality, and Stress: Psychosocial Factors in the Prevention of Cancer and Heart Disease* (Eysenck, 1991). He also addressed the important relationship between personality and crime by proposing a rather novel perspective combining personality factors (i.e. extraversion and psychoticism), biological processes (i.e. low level of cortical arousal), and principles of classical conditioning (i.e. slow rate of learned associations) by suggesting criminality was associated with those individuals who were less likely to develop a conditioned-response "conscience" and associate high levels of unpleasant arousal (e.g. guilt and anxiety) with criminal activities (Eysenck, 1996; Gudjonsson, 1997). In the field of organizational

psychology and the world of work, Eysenck investigated the relationship between personality and occupational preferences and job satisfaction (cf. Furnham, 1997). He also devoted his expertise to study such diverse applications of personality psychology as the relationship between personality factors and sexual attitudes and behaviors (Eysenck, 1976), personality and politics (Eysenck, 1954), and creativity, genius, and madness (Nyborg, 1997), along with efforts to apply principles of scientific investigation to examine critically the claims made by such borderline sciences as graphology, astrology, and parapsychology (Dean, Nias, & French, 1997).

Eysenck demonstrated a most remarkable level of productivity – he published 79 books and 1097 journal articles covering a wide range of topics (Farley, 2000). In recognition of his efforts, Eysenck received many prestigious awards, including the American Psychological Association's (APA) Award for Distinguished Contributions to Science (1988), the APA's Presidential Citation for Outstanding Contributions to Psychology (1994), and the APA Division of Clinical Psychology's Centennial Award for Lifelong Contributions to Clinical Psychology 1996), to name just a few.

Eysenck has had a lasting impact upon the field of personality not just because of the number of students trained at the IoP, nor because of his particular theoretical models, but due to his emphasis upon personality as a paradigm driven scientific endeavor that needs to integrate biological and social mechanisms to understanding individual differences.

See Also

Extraversion-Introversion
Extraversion, Personality Correlates of
Eysenck Giant 3
Eysenck Personality Questionnaire-Revised (EPQ-R)
Eysenck Psychoticism
Factor Analysis in Personality Research
Intelligence-Personality Association, Assessment of
Jeffery A. Gray
Neuroticism
Neuroticism, personality correlates of
Personality and Cancer
Raymond B. Cattell

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David Funder, Distinguished Professor of Psychology at University of California, Riverside, is a prominent and influential figure in personality psychology. Most notably, his work on accuracy in personality judgment reinvigorated interest and reoriented focus in this research area. In addition, he has conducted important research on delay of gratification, attribution theory, personality development, and the psychological assessment of situations. Funder received his doctorate from Stanford University in 1979 and has gone on to author numerous journal articles and books, including the widely used textbook *The Personality Puzzle* (Funder, 2016). He has received numerous awards recognizing his significant achievements, including the Jack Block Award for Distinguished Research in Personality. He has also received various research grants, including those from the National Institute of Mental Health and the National Science Foundation. In addition to conducting research, Funder is former editor of the *Journal of Research in Personality* and former editor of the *Journal of Personality and Social Psychology*. He is also past president of the Society for Personality and Social Psychology and the Association for Research in Personality. Funder's research has uncovered the processes and variables that make accurate judgments of personality possible. His work has also firmly established personality as a fundamental and persistent driver of human behavior over the life span. In addition, his research on situational construal has begun to fill in gaps in the personality psychology literature by shedding light on the ways in which situations influence behavior and how this might differ across individuals.

Funder has explained that making judgments about others' personalities is an inevitable and essential part of life; without such judgments, people may be unable to explain and predict the behavior of others, let alone get to know them. In a work of seminal importance, he identified the conditions that must be met in order for accurate judgments of personality to become possible (Funder, 1995). In the decades preceding this work, most research emphasized the common errors that plague human judgment and make it largely inaccurate. Funder's work represents a paradigm shift in which the focus is no longer on understanding how human judgment goes wrong but, rather, on understanding what is

necessary for it to go right. This shift was motivated in part by the observation that most of the research conducted on the errors of human judgment was carried out in artificial laboratory environments that separated the cognitive processes involved in judgment from an interpersonal, real-world context. Funder called attention to the fact that the errors identified in the lab may not necessarily manifest in the same way or lead to inaccurate judgments in the real world; in many cases, people are in fact capable of accurately gauging the personalities of those around them (Kenrick & Funder, 1988).

To move beyond the error paradigm and to explain how people are ever able to get an accurate read on others, Funder posited the Realistic Accuracy Model (RAM). The RAM specifies that when accurate personality judgments do occur, the conditions of relevance, availability, detection, and utilization must be met (Funder, 1995). First, to accurately pick up on the fact that someone has a particular personality trait, that person must exhibit some behavior that is *relevant* to the trait of interest. For example, in order to judge whether or not someone is extraverted, the person must behave in ways that reflect extraversion (e.g. be talkative or sociable). Second, trait-relevant behaviors must be made *available* to the judge. It is not enough that someone behaves in an extraverted way; if an accurate assessment of personality is to occur, that person must behave that way in front of the judge. If the extraverted behavior is carried out when the judge is not present, then an accurate personality judgment will not be forthcoming. Third, the trait-relevant behaviors that are made available to the judge must also be *detected* by the judge. Even if extraverted behavior is displayed in front of the judge, it will not ensure an accurate personality judgment if the judge is otherwise distracted or inattentive. The available, trait-relevant behavior must be noticed by the judge. Finally, the trait-relevant behaviors that are available to, and detected by, the judge must be correctly *utilized*. For example, the judge must properly infer that when someone is behaving in a very talkative and sociable manner that that person is likely to be quite extraverted. Funder's model of accurate personality judgment makes it clear that this process is interactive in nature; both the person being judged and the person doing the judging contribute in important ways. This work is of great significance because it clearly articulates the necessary components of accurate personality judgment.

In addition to explaining *how* accurate personality judgments happen, Funder also explains *when* they happen. Elaborating on the four-step process described above, he identified four factors that can affect the probability of these steps leading to an accurate judgment. These factors have to do with the person making the personality judgment (i.e. the judge), the person being judged (i.e. the target), the personal attributes being judged (i.e. traits), and quality and quantity of information on which the judgments are based. The likelihood of an accurate personality judgment is increased by the presence of a good judge, a good target, a good trait, and good information. Funder has found that good judges typically have more knowledge about personality and how it is reflected in behavior. Judges of strong ability who are also motivated to make accurate judgments tend to be more effective. A good target is characterized by transparency and consistency. People who freely express their personalities and behave consistently from situation to situation are more likely to elicit an accurate judgment. Some personality traits are easier to judge and thus can be considered good traits. For instance, it is easier to judge traits that are highly visible to observers (e.g. extraversion) than traits that manifest more as private, internal states (e.g. neuroticism). Finally, good information is a product of high quantity and quality. Accurate

judgments are more likely to ensue if there is ample exposure to someone's personality and if various sources of information are taken into account. Good information ideally consists of what the person says about herself, how she behaves, and what her acquaintances say about her. Funder posits this multifaceted approach to accuracy because it corrects for the errors and biases that arise when relying solely on one of these sources (Funder, 1995).

Funder has been one of the most influential voices in the debate over whether or not personality exists in any meaningful, consequential way (i.e. the person-situation debate) (Kenrick & Funder, 1988). Critics decried the notion that personality has a real and abiding existence, claiming instead that personality is a mere by-product of situational factors that changes depending on context. Critics also argued that the effects of personality on behavior are negligible (Mischel, 1968). However, Funder has effectively refuted such claims by showing that personality traits are, in fact, real and predictive of human behavior. First, the fact that people generally make similar judgments about the personalities of others supports the notion that personality exists as a real, objective phenomenon. For if it was only in the eye of the beholder, there would not be consensus among observers. Second, the fact that these judgments remain fairly consistent between people who know the person in different contexts supports the notion that personality is not entirely dependent on situational factors. Finally, Funder points out that there are indeed associations between personality traits and behaviors that are of the same magnitude as those between situations and behaviors. This supports the notion that personality is an important predictor of human behavior. Funder conceives of personality traits as those characteristic patterns of thought, feeling, and behavior that remain relatively stable over time and across situations (Funder, 1991). His forceful argument, paired with an accumulation of empirical evidence, did much to resurrect this notion of personality and to bolster the entire field of personality psychology.

While Funder does argue that personality is relatively stable across situations and that it can predict behavior, he also acknowledges that it is the interplay of personality and situations that offers the most robust explanation of human behavior. For instance, Funder has shown that having certain personality traits will make one more likely to choose to be in certain situations (e.g. an extreme introvert would be more likely to choose to work at a library than a busy nightclub). Thus, one's quiet behavior at a library might not be entirely due to the situational constraints of that environment, it might also reflect personality traits that led that person to the library to begin with. Situations can make it easier or harder to express certain traits, and a person's traits can alter a situation. Personality traits are more reliable predictors of behavior across time and situations than they are predictors of behavior in specific instances; for this, situational aspects might be more useful (Funder, 2016).

Funder's more recent research has been specifically aimed at understanding how situations influence behavior. He and his colleagues have developed a tool, the Riverside Situational Q-sort (RSQ), to measure the psychologically relevant attributes of situations. This more recent work has also sought to investigate how people from different cultures may construe or perceive the same situation in different ways. The International Situations Project, which includes collaborators from all around the world, is gathering data from various countries to increase understanding of how people from different cultures experience situations and how this might affect their behavior. This cross-cultural research on

situations is groundbreaking, as very few studies of this nature have previously been done in personality psychology. Funder's research will expand to include even more countries and will seek to show how personality interacts with situations to influence behavior across cultures. This type of cross-cultural research aimed at fostering a better understanding of cultural similarities and differences is especially important, as we live in an increasingly interconnected world.

Funder has called psychology to return to its roots of asking interesting and relevant questions that pertain to human existence in the real world (Funder, 2009). His work has been exemplary in answering this call. His research on personality judgment accuracy holds intrinsic interest for anyone seeking to truly know another person, and it may be particularly relevant in clinical and workplace contexts, where personality assessment is especially consequential. By studying the individual components of the personality, situation, and behavior triad and by examining the relations between these, Funder has advanced a more comprehensive understanding of human beings, and he has made significant strides toward answering the most interesting and relevant question of all "Why do people do what they do?"

See Also

Judgments of Personality
Personality Stability and Change Over Time
Person-Situation Interactions
Realistic Accuracy Model

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Lewis R. Goldberg

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Lewis R. Goldberg (b. 1932) is an influential personality psychologist, associated with crucial concepts in the resurgence of this field: the lexical hypothesis, the Big Five, and public-domain measures of personality.

Born in 1932, and growing up in Chicago, Goldberg gained a bachelor's degree in social relations at Harvard University. In obtaining a clinical psychology doctorate from the University of Michigan, he worked with E. Lowell Kelly (1905–1986). Early publications often focused on objective tests considered to have promising clinical applications, but soon his prime focus shifted to personality questionnaires. He was an acting professor at Stanford University from 1958 to 1960, and a professor (initially assistant professor) at the University of Oregon from 1960. He was among the earliest research scientists associated with Oregon Research Institute (ORI), founded in 1960 in Eugene, beginning an association spanning over 55 years. He served as field selection officer in the first few years of the Peace Corps program, and also had Fulbright sabbatical appointments overseas in Turkey and the Netherlands. He served as president of the Society of Multivariate Experimental Psychology (1974–1975) and the Association for Research in Personality (2004–2006), and received lifetime achievement awards from several professional societies.

Goldberg has published over 100 scientific articles. Here emphasized are the most heavily cited and influential ones (Goldberg, 1965, 1968, 1970, 1981, 1982, 1990, 1992, 1993, 1999). This work has involved (a) explications of the rationale for lexical studies of the structure of personality attributes; (b) the Big Five model of personality-attribute structure, its bases in the lexicon, and the optimal way to measure it; (c) the development of a large public-domain item pool as a resource for measuring the full range of personality tendencies; and (d) examinations of the comparative validity of varying assessment methods; as well as (e) earlier work on clinical inference and judgments.

Early rationales for lexical studies had been laid out by Gordon W. Allport (1897–1967) and Raymond B. Cattell (1905–1998), involving a "lexical hypothesis": "Those individual differences that are of the most significance in the daily transactions of persons with each other will eventually become encoded into their language" (Goldberg, 1981, pp. 141–142).

But, unlike Allport and Cattell, Goldberg also completed large-scale empirical projects of the language of personality, leading to numerous widely cited studies. These studies primarily involved American English (e.g. Saucier & Goldberg, 1996), but he collaborated with others in related work involving Dutch, German, Greek, Russian, and Turkish.

From his earliest presentations of the lexical rationale, Goldberg suggested as the prime candidate model a structure of five factors identified in his earlier work with Warren Norman. He coined the term "Big Five" to describe these factors. In cross-cultural applications, most of the six languages mentioned above – as well as several others – did bear out that prediction, with a structure of five fairly recurrent factors emerging from unconstrained exploratory factor analysis. This support in lexical studies proved a crucial component in the eventual ascendance that five-factor models achieved in personality research. These factors were labeled as Conscientiousness, Agreeableness, Emotional Stability, Extraversion, and Intellect/Imagination. From a measurement standpoint, Goldberg's approach has emphasized internal consistency as well as univocality (i.e. items associated unambiguously with one and only one factor). It used initially adjectives drawn directly from the lexicon, but then proceeded to use these as anchors for scales built from short verbal phrases that offer more clarity and specificity than adjectives. Such straightforward, brief, behavior-descriptive items should also prove easier than adjectives to translate, an important cross-cultural consideration.

Goldberg has guided development of an "international personality item pool." Beginning with translations of about 750 items from a smaller scale Dutch project, Goldberg and his team expanded the number of items to over 2,400, all of which were administered over the course of 11 years to a large American community sample. Goldberg has drawn on this pool in creating efficient, relatively brief scales for numerous and widely varying constructs emphasized in current personality inventories.

Several of Goldberg's studies have stressed "comparative validity," that is, the idea that the value of a scale or inventory is most efficiently estimated by placing it in competition with other scales or inventories, in prediction of important outcomes. In this respect, research can crucially function as a sort of "consumers' union" on behalf of the larger audience of test users. His various studies have suggested that rational-intuitive scales, even if constructed by non-experts, outperform external criterion-keyed scales like those prevalent in mid-twentieth-century psychology. This work contributed to a shift in personality psychology's measurement paradigm in the 1970s and 1980s.

Goldberg's studies (like those of his colleague Robyn Dawes) of clinical inference and judgments highlighted the superiority of linear, multivariate, empirical formulas over expert judgments, and the utility of recasting the best aspects of expert judgments as multiple regression formulas. For example, he derived an empirical formula for distinguishing psychotic from neurotic patients based on Minnesota Multiphasic Personality Inventory (MMPI) scale scores (Goldberg, 1965, 1972).

Goldberg has viewed personality primarily in terms of individual differences in aggregate behavioral tendencies. These tendencies are seen as differentiable along five key dimensions. They can be identified empirically via questionnaires (ideally, public-domain measures that are freely available) administered to ordinary people. Goldberg's work tended to put him at odds with several other influential psychologists: Jack Block (1924–2010), who espoused an approach to personality relying more on expert judgment and

psychodynamic insight, rather than on factor analyses of the lexicon as used by ordinary people; Hans J. Eysenck (1916–1997), who advocated for a model of three rather than five personality factors, with a strong predilection for neurophysiological theory as necessarily underpinning any factor; and Paul Costa and Robert R. McCrae, with their non-lexical rationale for a slightly variant set of five factors as represented on a proprietary rather than public-domain personality inventory. The 1990s in particular saw Goldberg involved in stimulating debates on these controversial issues in (as well as outside) publication outlets (e.g. Goldberg & Saucier, 1995).

Noteworthy has been Goldberg's distinctive style in the crafting of scientific contributions. He has read and reviewed widely, serving simultaneously on as many as nine editorial boards. He puts forward a direct and vivacious style in scientific articles. And he has typically circulated manuscripts among several dozen colleagues seeking input before any first submission for publication.

Although Goldberg's main work approached personality assessment with an emphasis on comparative validity, linear models, factor analysis, and the natural language, his scientific interests have ranged wider. He has published work on vocational and avocational interests, trauma and dissociation, demographic characteristics, grading and college learning, and selection of graduate students and Peace Corps personnel, and he has been associated with Sarah Hampson, Jack Digman, and others in longitudinal studies of personality and health from childhood to adulthood (see, e.g. Hampson, Goldberg, Vogt, & Dubanoski, 2006).

See Also

Factor Analysis in Personality Research
Gordon Allport
Hans J. Eysenck
John M. Dingman
Paul T. Costa, Jr.
Raymond B. Cattell
Robert McCrae

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Karen Horney

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Karen Horney (1885–1952) was a German neo-Freudian psychoanalyst who challenged Freud's view of women and countered the idea that personality was solely biological and inborn. Her contributions to feminine psychology and her development of the structure of neurosis have had an influence on the interpersonal school of psychoanalysis, and her theories of self-realization influenced humanistic psychologists such as Abraham Maslow and Carl Rogers.

Born in Hamburg to a Norwegian father and Dutch mother, Horney (born Karen Danielsen) was a bright, rebellious child who started cultivating her intellectual talents at a young age. In 1906, she enrolled in the University of Freiburg – one of the only universities which would admit women – and from there transferred to the University of Göttingen and then to the University of Berlin, where she earned her medical degree in 1915. During this time, she met and married Oskar Horney, with whom she would have three daughters but eventually divorce in the 1930s.

While she started as a physician, Horney moved quickly to psychoanalysis. With fellow psychoanalyst Karl Abraham, she founded the Berlin Psychoanalytic Institute in 1920 and continued to be associated with them as a board member and teacher until 1932, at which time she moved to the United States to join the Chicago Psychoanalytic Institute. In 1934, she joined the New York Psychoanalytic Institute and taught at the New School for Social Research. She was expelled from the New York Psychoanalytic Institute in 1941 because her theories deviated from Freud's; she then founded the American Institute for Psychoanalysis and remained its dean until her death in 1952. She also taught at New York Medical College and founded the *American Journal of Psychoanalysis*.

One of Horney's main contributions was her work on feminine psychology, which challenged traditional Freudian psychology's view of women. In "The Flight from Womanhood," (1932) she pointed out that psychoanalysis's phallocentric bias stems from an obvious place: Sigmund Freud was male, and so were the psychoanalysts who came after him (Horney, 1926). She proposed that, contrary to traditional Freudian theories, girls were aware of their genitalia before puberty and that while girls may experience penis envy at a young

age, this longing goes both ways, as young boys often wish for breasts or to be a mother (Horney, 1933). Penis envy at an older age comes from disappointment with the girl's father, leading to the masculinity complex, or a "flight from womanhood" – in effect, the desire not to be female (Balsam, 2013). But, for Horney, this was not inevitable, as a girl could overcome penis envy by identifying with her mother.

Horney traced the "distrust between the sexes" through history and various cultures, comparing the husband-wife relationship to a parent's relationship with a child, one that breeds mistrust and dislike. Likewise, society as a whole simultaneously fears and resents women, forcing them into a position that makes them dependent on men. Horney concluded that the resentment between men and women lay not in women's lack of a penis, but in men's envy of women's ability to produce life; in this, she turned penis envy on its head, positing instead that men have "womb envy" (Horney, 1967). This perhaps encapsulates Horney's most prominent deviation from traditional psychoanalysis: while Freud posited that women were incomplete because they lacked something, a penis, Horney saw women as whole beings who deserved to be seen and discussed on their own terms.

Horney's dissenting views on women, especially during a time in which women were seen as naturally inferior, caused a stir in the psychoanalytic world. She clashed with prominent psychologists of the time, many of whom were concerned about her deviation from Freudian orthodoxy. While Freud never responded to her theories directly, he once called her "able and malicious" and spoke scornfully of female psychoanalysts, saying that they would most likely devalue penis envy in their patients because they could not identify it in themselves (Lunbeck, 2014, p. 184). Horney's insistence on looking at women, and especially female sexuality, as equal to men and male development eventually contributed to her expulsion from the New York Psychoanalytic Institute.

Horney's work was also influential in bringing culture to the forefront of psychoanalysis. Traditional Freudian psychoanalysis viewed everything in terms of instinctual drives, but Horney emphasized cultural and social forces in behavior and psychological characteristics, especially in neurosis (Paris, 1996). Horney recognized the importance of culture in understanding neurosis, as culture defines what is "normal," and neuroses are shaped by and measured against cultural norms (Horney, 1936). She proposed a different definition of neurosis, one that, in her view, could transcend cultural norms by using what she termed "basic anxiety" and "neurotic trends." Even still, Horney's definition was grounded in people's relationships with others, not biological factors. *The Neurotic Personality of Our Time* (1937) described a new structure of neurosis, which Horney saw as stemming from basic anxiety, which in turn stems from family conditions that make a child feel unwanted. Basic anxiety causes people to feel helpless or lost in the world, and they try to fulfill their need for love and acceptance through four "neurotic trends": affection, submissiveness, power, or withdrawal (Horney, 1937; Paris, 1996).

Horney expanded her theories on neurosis in *Self-Analysis* (1942) to include ten neurotic needs: the need for affection; the need for a partner who will take over one's life; the need to restrict one's life within boundaries; the need for power; the need to exploit others; the need for recognition; the need for personal admiration; the need for personal achievement; the need for independence; and the need for perfection (pp. 54–58). Horney saw the need for affection and the need for power as the two driving forces behind neurosis (Paris, 1996). In *Our Inner Conflicts* (1946), she condensed the ten neurotic needs into three trends that

describe how people, in reacting to basic anxiety, interact with others. *Moving toward* people means that one clings to others and seeks to be loved. *Moving away from people* describes a person who does not want to become involved with others. *Moving against people* means that one sees the world as hostile and acts accordingly toward others.

Horney's work on neurosis kept developing. In *Neurosis and Human Growth: The Struggle Toward Self-Realization* (1950), she put forth the idea of the "real self," one that has developed in a healthy way toward self-realization. The real self, or, as Horney called it, the "possible self," is made up of "intrinsic potentialities" that will either flourish or wither, depending on the person and the circumstances (Horney, 1950, p. 17). Horney proposed that a person is like an acorn trying to grow into an oak tree: like the acorn, a person needs the right conditions to flourish. A person needs a warm atmosphere, the freedom to feel and to express feelings, and healthy relationships with others in order to achieve the real self (Horney, 1950; Paris, 1996). Self-realized people know their own minds and feelings. They have a "healthy conscience" (Horney, 1950, p. 131), a different concept from Freud's superego in that the conscience is a "moral agency serving our growth" (p. 131), whereas the superego only tamps down the urges of the id.

Without the conditions that allow self-realization, a person develops a neurotic personality, based on one of the neurotic trends: movement away from, toward, or against people. Instead of self-realization, neurotic people go on a "search for glory" that will allow them to fulfill an "idealized self" (Horney, 1950, p. 31). In Horney's view, although self-realization is difficult to achieve, one can do so under the right circumstances; by contrast, the idealized self is an "impossible self" that will never come to fruition. Failing to achieve the impossible self brings one to the "despised self," because one will always fail to live up to the idealized self's expectations. On the other hand, the "actual self" is the self that exists in any moment, made up of our strengths, weaknesses, failures, and achievements (Paris, 1996). The actual self and the real self may be far or close apart from each other.

There are five ways that neurotic personalities deal with the idealized self. People who move toward people develop compliant personalities whose idealized self is a person is loved and valued (Paris, 1996). To achieve this, they try to become what others need, whether that is self-effacing, or subordinate, or weak. They often suppress aggressive tendencies because they believe that those tendencies would make others not love or value them. On the other end of the spectrum, people who move away from people are detached personalities who desire freedom and independence from others. In essence, they want to be alone and free from others' desires, but Horney points out that freedom from constraints does not mean the freedom to be grow and be the real self (Paris, 1996).

People who move against people are aggressive personalities who fit into three "expansive solutions" (Horney, 1950): narcissistic, perfectionistic, and arrogant-vindictive. Unlike Freud, Horney did not see narcissism as an inherent trait, but rather as a product of one's environment: a gifted child who is pampered and admired may grow up to be a narcissist. Narcissistic people are both convinced of their own greatness and completely insecure; they may boast of their talents without having accomplishments to bolster their claims. Narcissistic people who fail too often, though, may experience a breakdown as reality collides with their idealized selves.

Perfectionistic people have unrealistically high standards, for themselves and others, which Horney attributed to authoritarian parents who made them feel worthless as

children (Paris, 1996). They view themselves as superior to others as they strive for a perfection that they will never achieve. Because they have a legalistic view of the world – that they are fair and just, and so the world should treat them accordingly – failure to achieve a goal or simple bad luck means, for them, that they have failed in their goal of seeking perfection. Perfectionistic people, then, often end up hating themselves. Arrogant-vindictive people are those who may have had a harsh childhood that hardened them to the world. Instead of seeking affection, they actively scorn it, seeking instead to retaliate against those who have or may hurt them. They may be possessive over other people and things, because they both hate and envy others' happiness. They are sadistic, wishing to exploit others for their own purposes, and they see people who express affection and feelings as weak.

Horney's work also influenced other branches of psychology. Abraham Maslow credited her with helping to found humanistic psychology – in fact, she was often invited to the meetings that led to the start of the American Association for Humanistic Psychology – and her work on self-realization influenced Maslow as he created the Hierarchy of Needs (Paris, 1996). Her term "basic anxiety" was also akin to Erik Erikson's "basic mistrust," which Erikson identified as the first stage (trust versus mistrust) of psychosocial development (Paris, 1996). Her theories on neurosis helped to inspire the interpersonal school of psychology and also influenced the DSM-III. Horney's work on neurosis and her mature theory of self-realization, then, influenced not only psychoanalytic theory, but also cultural psychology, interpersonal psychotherapy, and humanistic psychology. Her theories of female development, regardless of her colleagues' derision, forced psychology to begin to see women as complete beings and establish her as a psychologist who anticipated the feminist movements of the twentieth century.

See Also

Abraham H. Maslow
Anxiety
Gender Differences in Perceived Personality Traits of Men and Women

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Carl Jung

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Carl Gustav Jung was born in the small Swiss country village of Kesswyl on July 26, 1875. His mother was described by Jung as having emotional problems. His father, a poor but extremely well-read country pastor, introduced his son to the study of Latin at age six. Jung describes his childhood as rather lonely and isolated.

Jung originally wanted to be an archeologist. Because of limited financial resources, he was forced to attend the University of Basel, which did not offer courses in that area. He decided to study medicine because of the promise of greater career alternatives. Intending to be a surgeon, he switched to psychiatry to pursue his interests in dreams, fantasies, the occult, theology, and archeology. Upon graduation, he received an appointment to the Burgholzli Mental Hospital in Zurich where, from 1900 to 1909, he studied the nature of schizophrenia, established an extensive clinical practice, and developed into a world authority on abnormal behavior.

Jung was an early supporter of Freud because of their shared interest in the unconscious. In 1907, Jung traveled to Vienna for his first meeting with Freud where the two talked for 13 consecutive hours! In 1909, Jung traveled with Freud to America where they were to give a series of lectures at Clark University. During this trip, a fissure in their relationship first developed when the two experts were analyzing each other's dreams. During one of their interactions, Freud reacted to Jung in a very condescending manner, as though he (Freud) was the greater authority. This stunned Jung, as he had come to Freud with a world-class reputation, rather than as an intellectual neophyte.

When the International Psychoanalytic Association was formed in 1910, Jung became its first president at the request of Freud. Jung was being groomed to be Freud's heir to the psychoanalytic movement. However, growing theoretical differences, especially over the importance of sexual energy, resulted in Jung's resignation from the group only four years later. The split was bitter and clean. The two men never met or spoke to each other again.

From 1913 to 1917, while experiencing some serious emotional difficulties in his own life and even contemplating suicide, Jung engaged in a monumental effort of self-analysis.

The outcome of this self-analysis produced some of Jung's most original theoretical concepts. After this self-analysis and the recovery from his emotional disturbances, Jung continued his work for over 60 years, establishing himself as one of the most noted psychological thinkers of the twentieth century. For example, Jung studied schizophrenic patients in Switzerland, Navajo Indians in America, native tribes in Africa, and African American patients in Washington, DC. He participated in archeological and anthropological expeditions to explore diverse cultures in Egypt, the Sudan, and India, all into an attempt to verify his theory of personality. He was extremely well read in theology, anthropology, archeology, psychology, ancient texts, the occult, and mythology, as well as psychiatry. He incorporated this diverse knowledge into his theory of personality.

Jung died on June 6, 1961 in Zurich at the age of 85. He was an active and productive researcher and writer his entire life.

Structure of the Mind

Jung's view of the structural nature of personality clearly reflected a redefined, expanded view of the unconscious mind (Campbell, 2008; Jung, 1934/1960). The conscious ego is the center of conscious awareness of the self (Douglas, 2008). The major functions of the conscious ego are to make the individual aware of his or her internal processes (e.g. thoughts or feelings of pain) and the external world (e.g. surrounding noises) through sensations and perceptions at a level of awareness necessary for day-to-day functioning (e.g. a motorist recalls the alternate route for driving into town due to traffic problems ahead). Directly next to the conscious ego and completely below conscious awareness, Jung proposed the personal unconscious region of the mind. The contents of the personal unconscious included all those thoughts, memories, and experiences that were momentarily not being thought about and/or repressed because they were too emotionally threatening. Important elements in the personal unconscious are what Jung described as complexes (Jung, 1934/1960, 1954/1959). A complex is a collection of thoughts, feelings, attitudes, and memories that center around a particular concept. The more elements attached to the complex, the greater its influence on the individual. For example, complexes associated with religion and politics often times tend to have a rather strong influence on the thoughts, feelings, and behaviors of individuals committed to a particular ideology. The influence of the personal unconscious also includes a prospective and compensatory function (Jung, 1916/1969). The prospective function served to help the individual look into the future (e.g. aspirational thinking and setting of goals). The compensatory function of the personal unconscious helps individuals to balance out at an unconscious level the conscious aspects of personality being ignored (e.g. a shy person may dream of being the life of the party).

While the personal unconscious is unique to each individual, the collective unconscious is conceptualized as being transpersonal in nature (Jung, 1917/1966, 1936/1959, 1943/1953, 1945/1953). The transpersonal nature of the collective unconscious reflected Jung's view that there is a region of the unconscious mind containing a collection of general wisdom that is shared by all people, has developed over time, and is passed along from generation to generation across the ages and locations around the world. Contained in the collective

unconscious was a universal set of common thoughts, feelings, behaviors, beliefs, rituals, emotions, experiences, images, and symbols inherited from all of those who ever came before us over time, including animals. The principal function of this collective wisdom is to *predispose* individuals to respond to certain external situations in a given manner to maximize the development of the individual (e.g. a fear of the unknown, search for novelty, desire for social order, and need for the emotional contact with others). Thus, because these predispositions, or hereditary wisdom, are passed along from generation to generation, individuals do not need to start all over again with each new generation, making the task of survival that much easier.

Jung believed all of this inherited universal knowledge was stored in the collective unconscious in the form of archetypes. Archetypes were universal thought patterns and behavior rituals triggered by specific situations and symbols and images representing certain people, ideas, or beliefs. When expressed, these archetypes provide a universal response proven to be adaptive over time and across situations. For example, when groups of humans or animals gather, there seems to be an archetype for creating social order, whether that order is based on strength, knowledge, or ability, and an archetype for language, whether that language is based on bark, words, hand gestures, or music. Over time and across situations, there seems to be archetypes for believing in a higher power (e.g. the sun god, Christ, Buddha, Allah, the stars) to give people hope. There many different representations of the image for a mother archetype (e.g. the Virgin Mary, the Queen Mother, mother nature) which create as sense of caring and comfort. In addition to these general archetypes, Jung proposed very specific archetypes representing core elements of personality. To facilitate the interaction of the sexes, the *animus* is the masculine side of females and the *amina* is the feminine side of males. The *persona* was the tendency for people to develop a certain pattern of behaviors when in public to get along with others, similar to Freud's superego. The *shadow* represents the dark and more primitive side of personality, similar to Freud's id. The *self*, the most important archetype, serves to unite all other aspects of the individual's personality, similar to Freud's ego.

The Dynamics of Personality

Jung (1948/1960) viewed psychic energy as a generalized motivational source designed to help the self achieve a sense of balance. The self achieves a sense of balance within the personality by the ebb and flow of psychic energy among the various aspects of the self according to three basic principles. According to the principle of opposites, for each conscious and/or unconscious reaction within the personality, there is an opposite reaction to it somewhere else within the system (e.g. offset the development of an analytical side of personality at work with the seeking of more creative pursuits during times of leisure). According to the principle of equivalence, any psychic energy taken from one psychic structure (e.g. devotion to friends) is found somewhere else in the system (e.g. cramming for an exam). On the other hand, the principle of entropy states that when one aspect of the personality has a greater amount of psychic energy (e.g. cramming for an exam) the energy will flow back to the weaker aspect to create a sense of balance (e.g. spend extra time with friends after the exam).

Personality Assessment

In a word association test, the individual is given a word and asked to report the first word that comes to mind. Jung (1905/1973, 1907) was the first individual to employ systematically the use of the word association test in the clinical setting (cf. Bennet, 1983). His principal purpose was to use it to help identify the client's problematic complexes. More specifically, by examining what words produced various types of nervous behavior (e.g. stammering and/or changes in respiration rate) in the client, as well as the associations themselves, Jung was able to assess the degree of emotionality of the word associations and uncover their attachment to problematic complexes.

The Myers-Briggs Type Indicator (MBTI) is based on Jung's (1921/1971) type theory concerning differences in the way individuals use perception and judgment as general orientations to their experiences. More specifically, the MBTI illustrates some of the "basic differences in the ways human beings take in information and make decisions" (McCaulley, 2000, p. 117). According to Jung (Campbell, 2008; Jung, 1921/1971), there are two general types of personality attitudes by which individuals orient themselves toward their environment: extraversion and introversion. The extraversion attitude is an outward orientation in which psychic energy is invested in events and objects in the external environment (e.g. prefers group activities). The introverted attitude reflects an inward orientation in which psychic energy is invested in internal and more personal experiences (e.g. prefers to spend time alone). While Jung believed that both types of attitudes are present within each personality, he also thought that in each person one attitude is expressed more at the conscious level than the other (Bennet, 1983). Besides the two basic attitudes of personality, Jung (1921/1971; Bennet, 1983; Campbell, 2008) also proposed the existence of four functions of personality. Each function is characterized by a specific orientation for understanding the events and experiences in the environment.

- The sensation function involves relating to the world through the senses (e.g. To know something, you must be able to hear, smell, see, or feel it.).
- The thinking function refers to the tendency to relate to the world through ideas and intellect (e.g. If something is out there, what is its relation to other things?).
- The feeling function concerns reacting to the world based on the affective quality of one's experiences with it (e.g. Is that something good, valuable, acceptable, harmful, or unpleasant?).
- The intuition function goes beyond all of the other conscious functions and relies on a deeper, more internal sense of understanding (e.g. Although knowing what something is and how it feels, it still does not seem quite right for some strange reason).

As with the two attitude types, Jung assumed that each personality possesses all four functions, but one is often expressed at a more conscious level and predominant at the expense of the others (Ellenberger, 1970). Thus, while a feeling-type person will have to "see it to believe it," an intuitive-type person will know by just having a "gut feeling about it."

The MBTI is an objective self-report inventory designed to measure four dimensions of Jung's typology: Extraversion-Introversion (E-I), Sensation-Intuition (S-N), Thinking-Feeling (T-F), and Judgment-Perception (J-P). Since the descriptions of the E-I, S-N, and T-F dimensions correspond to those given to these terms previously, only the J-P dimension

needs to be defined. Judging types tend to be orderly, systematic, and try to regulate and control their life. On the other hand, perceiving types tend to be curious, open-minded, spontaneous, and try to understand life and adapt to it. The MBTI contains 126 pairs of items, each containing two statements reflecting opposing orientations on the four separate dimensions. Scoring and interpreting the MBTI involves assessing the extent to which the individual's choices for the items are more characteristic of one or the other orientation on the four separate dimensions. Based on the choices made, scores on each of the four dimensions are calculated for the individual. These four scores are then used to classify the individuals into one of 16 possible types (e.g. ISTJ, ISTP, ENFJ, ENTJ, etc.). The extensive use of the MBTI, along with the continued practice of Jungian analytical psychotherapy (Douglas, 2008), represents the contemporary influence of Jung's viewpoint of personality.

See Also

Clinical Applications of Psychodynamic Theory of Personality
Myer-Briggs Type Indicator
Projection Techniques, General Features and Methodological Issues
Unconscious Processes
Unconscious Processes, Expression of Personality Process

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Abraham H. Maslow

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Abraham H. Maslow, the first of seven children, was born on April 1, 1908, in a Jewish district of Brooklyn, New York. His parents, who were Russian immigrants, owned a barrel manufacturing company. As the business improved, the Maslows moved their family out of the slums and into a lower-middle class neighborhood. In the new neighborhood, Maslow was the only Jewish boy and the target of much anti-Semitism. As a result, he spent much of his time alone reading books in the library. His relationship with his parents was also somewhat difficult. As a child, Maslow talked about being afraid of his father, and he talked about his mother as probably being schizophrenic. Despite Maslow's strained relationships with his parents, he developed a very close relationship with his mother's brother. He attributes his mental stability to the care and attention he received from his uncle.

After high school, Maslow was persuaded by his father to attend college to study law. Because he was not particularly interested in being a lawyer, Maslow's grades were not very good. He was also troubled by career uncertainty and his love for a woman of whom his parents disapproved. Maslow dealt with these troubled times by leaving New York and enrolling at the University of Wisconsin. Shortly after moving to Wisconsin, Maslow (who was then 20) returned to New York to marry his childhood sweetheart, 19-year-old Bertha Goodman. The newlyweds then returned to Wisconsin. As an indication of the emotional difficulty of his early life, Maslow stated that he really did not start living until he married Bertha and moved to Wisconsin.

Maslow stayed at Wisconsin to earn his BA (1930), MA (1931), and PhD (1934). The educational training he received at Wisconsin emphasized the very rigorous and objective scientific approach to the study of psychology that had become so popular. His doctoral dissertation, which dealt with the sexual behavior of monkeys, was under the direction of the famous experimental psychologist Harry Harlow. Upon completing his PhD degree, Maslow returned to New York and accepted a position at Columbia University as a research assistant to Edwin L. Thorndike, another famous psychologist. He also started teaching at Brooklyn College, where he stayed until 1951. During this time, Maslow began to extend

his early research on the establishment of dominance in monkey colonies to the study of dominance in humans.

Because many of Europe's leading psychologists, psychiatrists, and other intellectuals were settling in New York to escape the Nazis, Maslow was able to meet, interact with, and learn from such personality theorists as Karen Horney and Alfred Adler. Such a stimulating environment would be enough to affect most people's thinking, but Maslow reported that it was the birth of his first child that significantly affected his views. He proclaimed that all of his academic knowledge and training and scientific research with rats and monkeys did little to prepare him for the wonder and mysteries of an infant child. As a result, Maslow shifted his attention away from the study of animals and began to study what he felt were the motivating forces behind personality out of a sincere desire to discover how to improve it.

In 1951, Maslow left Brooklyn College to accept a position at Brandeis University. He remained there until 1969. During that time, Maslow continued to develop and refine his theory on the nature of human motivation, which attracted a considerable amount of recognition.

In 1967, Maslow was elected to the prestigious office of president of the American Psychological Association. He left Brandeis University to become a resident fellow of the Laughlin Charitable Foundation in California, where he began a large-scale study applying his theory of human motivation and the philosophy of humanistic psychology to such topics as politics, economics, religion, and ethics. For all of his efforts, Maslow is considered a major force in the development of the humanistic movement in psychology (Moss, 2001). Having a history of heart trouble, Maslow died of a heart attack on June 8, 1970.

Maslow proposed a viewpoint of the individual that has become known as the third force in psychology, with the psychodynamic emphasis on the unconscious processes and behaviorist emphasis on environmental controls on behavior being the other forces. The emphasis of this third force has been to enhance the dignity of people by studying the internal processes contributing to their self-directed self-enhancement.

The Motivational Nature of Personality

For Maslow, the driving force behind personality was that individuals were constantly being motivated to meet a variety of biological and psychological needs. The meeting of these needs was assumed to operate in a dynamic process rather than in isolation (Maddi, 1996; Reis & Patrick, 1996). The principal objective of these needs is the motivation of the individual to reach a state of self-actualization – attempts by individuals to reach their full potential by using their talents and abilities to the fullest extent while trying to achieve personal growth, satisfaction, and fulfillment.

Maslow organized human needs in a manner designed to promote the achievement of this state of self-actualization by grouping them into deficiency needs and being needs (Maslow, 1970): Deficiency needs are the lower, more basic needs necessary for the survival of the individual, including hunger, thirst, and safety, which serve to motivate the individual to engage in behavior designed to bring about the satisfaction of these needs. Being needs are the higher needs necessary for the achievement of a state of

self-actualization, including those needs reflecting a desire for wisdom and a sense of aesthetics, which serve to motivate individuals to engage in behavior designed to bring about their emotional and cognitive fulfillment. The lower needs are considered to be more potent and to have a greater influence on behavior than the higher needs. As a result of these features, the lower needs are also generally satisfied before the higher needs.

Hierarchy of Needs

Maslow (1970) organized these human needs into five basic groups in a hierarchical fashion. The logic of the hierarchy of needs is that the needs at the lower end of the hierarchy exert more power in that they apply a greater sense of urgency to be satisfied than the needs at the next level. Progressing up the hierarchy of needs results in the individual coming closer to achieving the state of self-actualization. As individuals begin to meet the needs of one category in a consistent and satisfactory manner, efforts are made to begin to meet the needs of other categories higher up in the need hierarchy.

At the bottom of the hierarchy of needs are very powerful physiological needs, which are those directly related to the survival of the individual (e.g. the need for food, water, and sleep). Next are safety needs, which are those directly related to creating a secure and stable environment. Efforts to meet the safety needs include establishing a comfortable place to live and creating a certain degree of routine and predictability in life. Belonging and love needs are directly related to fostering a sense of feeling accepted by others and being part of a community. Efforts to meet these needs include establishing meaningful relationships through family, friends, one's neighborhood, religious groups, or professional organizations. Esteem needs are characterized by the desire to have the respect of others and a sense of self-respect. Efforts to meet these needs might include securing the respect of others by taking a leadership role in an organization at school or running for office in the community. Self-actualization needs are characterized by the desire for individuals to develop their abilities to their fullest potential. Efforts to meet these needs involve individuals being aware of, and accepting, their own abilities and potentials and, based on this sense of self-awareness, pushing themselves to their maximum limits to meet personal and situational challenges throughout life. Thus, he believed striving for self-actualization was a life-long process of all individuals in their quest to seek personal enhancement and self-improvement. For Maslow, the uniqueness of expression of personality we see in different people is the special way each individual elects to meet their needs in a consistent manner over time and across situations.

Maslow's views have been applied to a wide variety of areas, including psychotherapy (Boorstein, 2000), religion and spirituality (Elkins, 2001; Maslow, 1976), athletic performance (Privette, 2001) and consumer behavior and marketing (Hawkins, Mothersbaugh, & Best, 2007). Although these applications of Maslow's viewpoint provide some support for its utility, criticisms of this perspective include the use of many concepts and processes to describe the operation and expression of personality that are difficult to explain (e.g. Upon what basis did Maslow select the five need categories?) and test objectively (e.g. What is the measure to assess the extent to which an individual is making progress toward self-actualization if it is different for each individual?)

See Also

Carl Rogers
Maslow's Hierarchy of Needs
Self-esteem, Theory of

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Dan McAdams

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Dan P. McAdams is a personality psychologist known for contributions to the study of personality theory, assessment, generativity, adult development, self and culture, political psychology, and perhaps most, pioneering the narrative study of lives and the theory of narrative identity. He is also well known as an integrative thinker, developing a three-domain framework for understanding personality, encompassing dispositional traits, characteristic adaptations, and narrative identity.

McAdams is the Henry Wade Rogers Professor of Psychology and a Professor of Human Development and Social Policy (HDSP) at Northwestern University. He has served multiple terms as Chair of the Psychology Department, HDSP, and the Program in Counseling Psychology. He previously held the rotating Charles Deering McCormick Professor of Teaching Excellence Chair at Northwestern University (1995–1998). He is the recipient of many awards and recognitions, including the Henry A. Murray Award (1989) and the Jack Block Award (2012) from the Society for Personality and Social Psychology, the William James Book Award (2006) from the American Psychological Association, the Theodore Sarbin Award (2012) from the Division of Theoretical and Philosophical Psychology of the APA, an award for teaching excellence from the Undergraduate Psychology Association at Northwestern University, and two honorary doctorates. He is the author of nearly 300 peer-reviewed journal articles and scholarly books, many of which are highlighted here. His work has been covered by numerous popular media outlets, including *The New York Times*, *The Atlantic*, *The Wall Street Journal*, *The New Yorker*, *The Washington Post*, National Public Radio, and *The Chronicle of Higher Education*. McAdams served as a founding member of the Association for Research in Personality and its President (2016–2017). His research has been supported by two decade-long grants from the Foley Family Foundation, as well as from the John Templeton Foundation. He has mentored numerous graduate students, postdoctoral fellows, as well as many undergraduates.

McAdams was born in Lynwood, California on February 7, 1954, but moved as an infant to his parents' hometown of Gary, Indiana, where he lived until graduating from high school. As a child, McAdams felt unfulfilled by his options in Gary. He played baseball and read voraciously. He worked jobs in the local steel mills and in his father's car dealership. His parents divorced when he was in grade school and McAdams and his two siblings were raised by their mother, a telephone operator. He knew early on that college would offer him access to a different world, and he was right. He enrolled at nearby Valparaiso University, where he was admitted to the Honors College which introduced him to the Western canon. McAdams double-majored in psychology and the humanities, an intellectual pairing that would inform his intellectual life throughout his career. McAdams credits his introduction to Freud for stimulating his interest in human behavior and the relationship between mind and society. He has written that Freud, along with other figures like Aristotle, Cervantes, Dostoevsky, Kierkegaard, Sartre, and Buber were "like characters in my life" during those years. It was also during college that McAdams met Rebecca R. Pallmeyer, the women who would ultimately become his wife. The two graduated from Valparaiso in 1976 and wed in 1977. Pallmeyer is now Chief Judge of the United States District Court for the Northern District of Illinois (nominated by President Bill Clinton in 1997 and commissioned in 1998).

In 1976, McAdams enrolled in the PhD program in Psychology and Social Relations at Harvard University. He studied among several leaders in the fields of psychology and human development, including Professors Dante Cichetti, Carol Gilligan, George Goethals, Jerome Kagan, David C. McClelland, and Sheldon White. McAdams was mentored primarily by Goethals and McClelland. Through his work with Goethals, he continued to pursue and refine his interests in psychoanalysis and in lifespan human development. McClelland was a key figure in the study of human motivation and famous for developing assessments of basic human needs, including the needs for power, achievement, and affiliation. McAdams's dissertation and early works (e.g. McAdams, 1980; McAdams & Powers, 1981) reconceptualized McClelland's affiliation motive as *intimacy motivation* – defined as a recurrent preference or readiness for experiences of warm, close, and communicative interaction with others – and developed valid ways of assessing this construct by using the Thematic Apperception Test (TAT).

After graduating in 1979, McAdams taught as a Visiting Lecturer at St. Olaf College (Northfield, MN) and at the University of Minnesota for one year before being hired in 1980 as an Assistant Professor of Psychology at Loyola University of Chicago. While at Loyola, McAdams and Pallmeyer welcomed their two daughters.

In the 1980s, McAdams continued his pioneering work on intimacy motivation (assessed though the content analysis of TAT stories) with a series of innovative studies. For example, McAdams (1982) showed that intimacy motivation predicted higher levels of intimacy themes in positive autobiographical memories. In an experience sampling study assessing feelings, thoughts, and behaviors in daily life, intimacy motivation was positively associated with a variety of indicators of warm interpersonal relations (McAdams & Constantian, 1983). When asked to recount interactions with friends, people with higher levels of intimacy motivation reported more close, caring, and open communication styles (McAdams, Healy, & Krause, 1984).

It was also during the 1980s that he developed his influential life-story model of identity (McAdams, 1985). Inspired by William James's distinction between the *I* (self-as-subject)

and the *Me* (self-as-object), McAdams theorized that the *I* arranges the *Me* into a configuration – the life-story – that provides a person with a sense of unity, coherence, and purpose. A person's life-story, like all good stories, contains characters ("imagoes"), themes (e.g. agency/power, communion/intimacy), important scenes (nuclear episodes, self-defining memories), and varies in structure (simple/complex). McAdams integrated his motivational research based on the TAT with thematic coding of life stories to find links between intimacy motivation and life-story themes of affiliation, as well as links between power motivation and life-story themes of agency.

Both continuity and change are evident in the next chapter of McAdams's career. The 1980s closed with his transition from the department of psychology at Loyola University of Chicago to the department of HDSP at Northwestern University. It was at this latter institution that McAdams achieved several milestones. Among them is the publication of his 1993 book, *The Stories we Live By: Personal Myths and the Making of the Self* and his highly influential article, *What do we Know when we Know a Person?* (McAdams, 1995). In these publications, McAdams began to more thoroughly speculate on the nature of life stories from a lifespan development perspective. Furthermore, in the latter publication, McAdams introduced his multilevel conception of personality in which constructs are placed within one of three conceptual and empirical levels: personality traits (broad patterns of affect, cognition, and behavior), characteristic adaptations (constructs couched within developmental and situational spaces), and life stories. The impact that this writing has had on the field of personality psychology – and psychology more broadly – is palpable.

At and around this time, McAdams (1993, 1995) articulated several features of life stories that guided later empirical projects. His professional affiliation also shifted slightly, as he came to adopt a joint position at HDSP and the department of psychology at Northwestern. Some of the concepts he introduced in relation to life stories have become cornerstones of narrative research (e.g. agency, communion), whereas others have not received as much research attention (e.g. imagoes). It is in the mid-1990s that we begin to see the emergence of an empirical field of study focused on life stories. Given that McAdams was heavily influenced by the writing of Erik Erikson and was now himself a parent, perhaps his evolving interest in generativity, broadly defined as a care and concern for the well-being of the next generation, could have been anticipated. His work in this area led to several contributions. Notably, his article on the life stories of highly generative individuals (McAdams, Diamond, de St. Aubin, & Mansfield, 1997) was the first empirical paper to appear in the flagship journal of social and personality psychology (cf. the *Journal of Personality and Social Psychology*) that focused on the analysis of life stories.

One of the major findings emerging from this work was that highly generative individuals tended to narrate the major autobiographical events from their lives using redemptive imagery (wherein a negative beginning gives way to a positive ending; see also, McAdams, Josselson, & Lieblich, 2001). It was shortly thereafter that he published, *The Redemptive Self: Stories Americans Live By* (McAdams 2006). A more nuanced understanding of life stories is evident in this book, as McAdams worked to marry an appreciation of the highly personal and highly cultural nature of the stories we live by. For these and other readings, this book received the 2006 William James Award from the American Psychological Association, which is awarded to the best general-interest book published in the applicable year.

That same year also saw the publication of one McAdams' most highly cited articles (co-written with Jennifer Pals, now Lilgendahl), "The New Big Five," a piece in the *American Psychologist*, in which he further developed his three-level approach to the human person by adding evolutionary and cultural levels of analysis (McAdams and Pals, 2006). This work displays one of his major contributions to personality science: theory building that synthesizes findings from disparate research traditions thereby calling personality researchers to think beyond their silos. Running through this article, and many others from this time period, is McAdam's conviction that the human person is the proper subject of study for personality science. McAdams marshaled a broad array of conceptual and methodological tools to this end. In high-profile publications from 2010 to 2013, McAdams further refined his theory of the human person by developing the model of the self as actor, agent, and author. This line of work culminated in his 2015 book, *The Art and Science of Personality Development*, which broke new theoretical ground as a contemporary account combining personality and developmental science. Throughout this time period, McAdams was prolific in publishing empirical research on topics ranging from the whole person, political psychology, well-being, generativity, psychotherapy narratives, motivation, and narrative research methods. The fruitfulness of his approach is seen both in this empirical output but also in the large number of students, collaborators, and researchers, both in the United States and internationally, who employed his theoretical and methodological innovations for the advancement of narrative research, personality science, and allied fields.

With the publication of *George W. Bush and the Redemptive Dream* in 2011, McAdams pushed the field of personality psychology to return to one of its original endeavors, psychobiography, the aim of using empirically grounded principles to understand the personality of a single individual. In the following years, McAdams would use state-of-the-science approaches to describe the lives of multiple public figures. Most notably, in the pitch of the US presidential election season in 2016, McAdams wrote, "The Mind of Donald Trump," a cover story for *The Atlantic*. With this piece, McAdams showed how personality science helps explain figures that shape current politics. McAdams presents a more complete psychobiography with the publication of The Strange Case of Donald J. Trump in 2020.

In a personal essay written in 2005, McAdams referred to himself as "a psychologist without a country." He described his career-long division between the empirical social sciences and the humanities, a tension which renders him fluent in the dialects and customs of both fields, and no single refuge to call his home. Over the course of his academic career, he has made both locales his primary residence for periods of time, but continues to struggle with the challenges of, and to reap the benefits of, "dual citizenship." Yet this unique bicultural academic identity may be the source of many of McAdams' greatest contributions. Indeed, pursuing problems as complex and significant as the narrative nature of identity demands epistemological and methodological flexibility.

See Also

Big Five
Erikson's Stages of Psychosocial Development
Openness
Personal Narratives

Personality Development
Psychobiography and Case Study Methods
Self-construal

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Walter Mischel

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Background

Walter Mischel was born on February 22, 1930 in Vienna, Austria and immigrated to the United States during childhood. He earned a Bachelor's degree in 1951 from New York University and a Master's degree in 1953 from the City College of New York followed by his doctorate in Clinical Psychology in 1956 from Ohio State University. He then commenced his academic career at the University of Colorado, and subsequently held university positions at Harvard and Stanford. From 1983 he had held the role of professor at Columbia University. He had over 200 publications which include peer-reviewed journal articles, book chapters, book reviews, encyclopedia entries, and textbooks. Some prominent positions he held include the following: President for the Association of Personality (2002–2003), Editor of the *Psychological Review* (2000–2004), Fellow of the National Academy of Science (since 2004), President of the Association for Psychological Science (2008–2009), Editorial Board Member for Social, Cognitive, and Affective Neuroscience (since 2005). Mischel died in New York on September 12th, 2018.

The Marshmallow Test, Hot-vs-cool Systems, and Current Relevance of this Research

The 1960s mark the decade in which Mischel and his collaborators began their research to determine the factors that were facilitative and deterrent for *self-control* and their long-term implications. Self-control was defined as the ability to delay gratification (i.e. to choose to wait for a larger reward instead of succumbing to get a small instant reward; Mischel, Shoda, and Rodriguez, 1989). The name "Marshmallow Test" was adopted to describe this line of research because in early research on delay of gratification, the research design involved preschool children choosing whether they would wait to get two marshmallows (or an alternate desirable food reward) or would lose patience and settle

for a single marshmallow which the experimenter would offer whenever requested and without delay (e.g. Mischel & Ebbesen, 1970). A series of studies on this topic led to several insightful findings as outlined in Mischel et al. (1989).

As a starting point, it was seen that some preschoolers found it easier than others to delay gratification to receive a larger reward (i.e. without being given support on how to do so). The implication of such variation is that it indicated that the capacity for delaying gratification could be considered as a personality characteristic. However, the same program of research also found that children when given instruction on ways in which gratification could be delayed were successful at delaying. Such a finding showed that delay of gratification can also be viewed as a malleable psychological process that can be engaged in. Also, in conditions where children could view the reward or focus on its pleasing qualities (e.g. how delicious the marshmallow would taste), the capacity to wait was hampered. In contrast, it was observed that children can prolong wait times in conditions where there is a means for distraction or via construing the reward in an abstract manner (e.g. viewing the marshmallow as a different object that is less appetitive). Importantly, a practically-relevant finding from this research is that self-imposition of a delay by a child showed links to long-term positive outcomes such as higher SAT scores and being perceived by parents as better adjusted and competent.

To explain the nuances that influence how long people wait for gratification, a *hot-cool system framework* was put forward by Metcalfe and Mischel (1999). Per this framework, individuals have two cognitive systems that play a role in information-processing and which in turn can influence how decisions are made. The two systems are hot and cool, and when considering how they vary, the distinction of impulsivity versus rationality can be invoked. The *"hot" system* is emotion-centric and is triggered by stimuli such that people may respond in a quick and reflex-based manner. In contrast, the *"cool" system* is focused on cognition and involves self-control in that people respond to stimuli in a manner that is slower and more strategic. Applied to the Marshmallow Test, the hot system directs a child to want the marshmallow sooner, but the cool system enables the child to wait for a better outcome. The paper goes on to describe how waiting can occur if individuals train themselves to "cool down" hot stimuli (e.g. a marshmallow) using methods such as distraction from the stimuli, blocking the stimuli from view, or thinking about informational rather than emotional features of the stimuli.

The Marshmallow Test represents a classic study in psychology, but its principles and design have been applied and expanded upon in current research. Casey et al. (2011) have documented the temporal stability of the capacity for delaying gratification, and their findings have shown that even after four decades, those who found gratification delay difficult as a child remained less effective at gratifying delay as adults. Furthermore, research by Watts, Duncan, & Quan (2018) attempted to conceptually replicate longitudinal research using the Marshmallow Test. Their aim was to enhance generalizability and to address some limitations of the original research (e.g. sample size constraints and confounding variables not being adjusted/controlled for). In line with earlier findings by Mischel and colleagues, these researchers also discovered a positive link between being able to delay gratification at a young age with achievement when in adolescence. However, in their sample when control variables (e.g. background characteristics, cognitive skills, behavioral skills, etc.) were included in the analysis, the gratification delay and achievement link reduced

greatly, and in some cases failed to be significant. It is noteworthy that Watts et al. (2018) acknowledged in their discussion that the possibility of control factors driving the positive gratification-achievement link is one that is not inconsistent with ideas presented in the study they chose to replicate by Shoda, Mischel, and Peake (1990).

The Person-Situation Debate and the Cognitive-Affective Personality System (CAPS)

Just as many people associate research on delay of gratification to Walter Mischel, so too is he renowned for his trailblazing publication *Personality and Assessment* (Mischel, 1968). In this book, a major premise was the acknowledgment of the inadequacy of personality variables at effectively predicting cross-situational behavior. In a follow-up article several decades later, Mischel (2009) clarified that the aims of the book were not only to identify problems and limitations concerning methodology and theoretical assumptions in personality psychology, but also to put forward the notion that finding consistency in behavior across situations can be enhanced when factors other than personality are also considered in prediction. Despite these aims, the book facilitated the *person-situation debate* wherein scholars in personality and social psychology disagreed as to whether attributes of personality or situational variables were better predictors of behavior.

Subsequent to the controversy created by this volume, Mischel and Shoda (1995) published a paper entitled *A Cognitive-Affective System Theory of Personality: Reconceptualizing Situations, Dispositions, Dynamics, and Invariance in Personality Structure*. In this paper, research was presented with the intent of resolving the ongoing debate by providing a testable theoretically sound model on how behavior is multiply determined. In this CAPS model, the key components are fivefold and collectively are referred to as *cognitive-affective units (CAUs)*. Briefly described, these units are *encodings* (i.e. ways in which pre-existing or novel information is stored in the mind), *expectancies and beliefs* (i.e. what individuals have internalized and believe about themselves, their outcomes, and their surroundings which in turn shapes their responses), *affect* (i.e. feelings and emotions that feed-forward to affect behaviors and thoughts across situations), *goals* (i.e. outcomes that individuals work toward or are motivated by) and *competencies and self-regulatory plans* (i.e. actions individuals have the capacity to engage in along with the approaches people take to achieve desired outcomes). As a testament to the utility of CAPS, this framework is still being adopted and adapted by scholars as a means of answering key research questions within the field of personality psychology. To illustrate, Armstrong, van der Lingen, Lourens, and Chen (2018) sought to discover the cognitive-affective units that contribute to individuals engaging in behaviors that demonstrate *grit* (i.e. goal commitment despite adversity).

The CAPS system hypothesizes that individuals possess different personality characteristics and encounter a number of situations in their lives, and their choice of behavior will depend on which cognitive-affective units get activated. In this sense, the person-situation debate is irrelevant given that both innate qualities of a person and extrinsic situational factors in conjunction shape the activation of CAUs and predict behavior. This model also clarifies a concern brought up in the person-situation debate regarding personality stability (i.e. variable behavior across situations is construed as being at odds with the idea of stable personality). To address

this issue, the argument made in the paper, based on previous research studies, is that individuals have *if...then... behavioral signatures of personality* based on CAUs activated in different situations, and these reflect a form of stable individual difference. To expand, if...then...signatures are the idea that a person engages in Action A in Situation X, but does action B in situation Y (i.e. different situations are linked with different behavioral responses). Evidence has shown that just as individuals show consistency in mean levels of a trait (e.g. being seen as high on neuroticism), so too is there a tendency to act in specific ways in specific situations (e.g. always performing action B in situation Y).

Acknowledgments and Awards

Walter Mischel held the title of the Niven Professor of Humane Letters in Psychology at Columbia University. Throughout his career, he received a number of awards for his scientific contributions. In 2005, he received the Jack Block award for Distinguished Contributions to Personality Psychology. Later, in 2009, he was the recipient of the Grawemeyer Award for his research on self-control and delay of gratification. Recently, in 2015, he and his collaborators received the Golden Goose Award from the American Psychological Association for their longitudinal work on self-discipline. Additionally, he was widely recognized by both the scientific and lay community as a highly influential twentieth-century psychologist.

Conclusion

Professor Walter Mischel was a reputed scholar whose research had garnered the interest of both the scientific community and the general public. His scholarly writings have helped answer the following questions among others: How, when, and why do people engage in delaying gratification? How do both personality and the situation play a meaningful role in behavioral prediction? His works have held the test of time, are still cited today, and have offered a foundation for scientific growth in the field of personality psychology.

See Also

CAPS
Delay of Gratification
Person-Situation Interactions

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Carl Rogers

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Experience is, for me, the highest authority. The touchstone of validity is my own experience. No other person's ideas, and none of my own ideas, are as authoritative as my experience. It is to experience that I must return again and again, to discover a closer approximation to truth as it is in the process of becoming in me. (Carl Rogers, *On Becoming a Person*)

Rogerian Therapy

Carl Ransom Rogers (American psychologist, born: January 8, 1902 – died: February 4, 1987) has been dubbed in psychology the father of "client-centered therapy," later termed "person-centered therapy." This influential theory of personality, and the resulting therapeutic approach, is founded firmly in the phenomenal field of humanism advocated by eminent researchers such as Combs, Snygg, and Maslow. It is based on the belief that persons should be free to choose their values, life choices and growth orientation.

Unlike traditional psychoanalytic approaches to therapy, or the contemporary behaviorist movement, client-centered therapy examined the wholistic picture of the individual with the therapeutic goal to help the client reach full potential as a person. This psychological perspective deviated from earlier practices in that symptoms, and resulting diagnoses, were no longer the primary focus of treatment. Rogers believed that psychopathology arose from poor self-concept developed from negative messages communicated to us in early development. These negative messages instill "conditions of worth" that can never be achieved, resulting in "lack of congruence" between the real self that we wish to be and the ideal self we strive to become. His therapy communicated what he termed, "unconditional positive regard" for the client through supportive statements, lack of judgment – regardless of the nature of the client experience – and encouragement for the development of the self (Rogers, 1959).

According to Rogers, a fully functioning person manifested several key traits (Rogers, 1961):

1) Openness to experience
2) Mindfulness to the moment
3) Trust in self
4) The ability to make choices and take responsibility for them
5) A creative and non-conformist lifestyle
6) Reliability
7) A full life that encompasses a rich spectrum of emotions

Career Accomplishments

Both a prolific researcher and clinician, Rogers continues to stand out among his humanistic peers for his advocacy of empirically supported therapies. He authored numerous journal articles and 19 books, among the most recognized of which are *Client-Centered Therapy* (1951), *On Becoming a Person* (1961), *Person to Person: The Problem of Being Human* (1967) and *A Way of Being* (1980). Recognized for his accomplishments as both a researcher and practitioner, Rogers was nominated as the president of the American Psychological Association in 1947 and was later honored for his pioneering research with the APA Award for Distinguished Scientific Contributions in 1956. After an illustrious academic career, he went on to become the co-founder of the Center for Studies of the Person where he conducted research and performed therapy until his death in 1987. Prior to his death, he was nominated for the Nobel Peace Prize for his work to unite the Catholics and Protestants in Northern Ireland and to abolish Apartheid in South Africa (Cohen, 1997).

Early Life

Carl Rogers was the fourth of six children born to his upper middle-class family in Oak Park, Illinois. His father, Walter Rogers, was a college-educated civil engineer and his mother, Julia, was a housewife. Both of his parents were profoundly religions and Rogers was raised in a fundamentalist Protestant tradition. Perhaps born of this religious conservatism, Rogers reported that his parents, although loving, were also quite controlling of their children's behavior (Thorne, 1992). He noted that he suspected that if they had known his true thoughts, his parents would not have approved of him. In retrospect, Rogers speculated this upbringing may have led him to develop a deep need for acceptance and positive regard at an early age.

Precocious even as a young child, Rogers demonstrated such high intellect that he started school in the second grade. Records show him to have been a high achiever throughout his early education. When he was 12, his parents moved to rural Illinois where he determined to pursue a career in agriculture. During his undergraduate career at the University of Wisconsin, however, he participated in a fateful six-month trip to Beijing, China where he was exposed to great human exploitation. Following his return to the United States, he developed a stomach ulcer and was hospitalized for several weeks.

Because of this experience, he reconsidered his career objectives and switched his major to History and graduated in 1924 with the intent to attend theological seminary to become a minister (Thorne, 1992).

Rogers reportedly soon became disenfranchised by the structure of his curriculum at the Union Theological Seminary in New York, which was at the time renowned as the most liberal of theological institutes. While there, however, he was responsible for organizing a revolutionary new seminar format that had no instructor or course topic and was organized exclusively around the students' questions. He later attributed this experience to the development of his own "person-centered" therapeutic approach (Demorest, 2004). Following a formative class in psychology taken with Letta Stetter Hollingworth at Columbia University, he again shifted career goals to pursue his doctorate in Psychology at Columbia, graduating in 1931.

Career

His work with the Society for the Prevention of Cruelty to Children, following his doctoral training, later went on to shape his non-directive interventions in three ways. The first instance was following his unsuccessful work with a young man who had both a penchant for starting fires and for masturbating. From a strict Freudian perspective, Rogers initially treated the young man for his unsatisfied sexual urges and released him. When the teen was promptly caught setting another fire, however, Rogers was struck by the realization that even authorities such as Freud could be wrong. His second insight came when he reviewed a parent interview conducted by a caseworker which presented as a legalistic documentation of guilt rather than an insightful interpretation of events and motives. He later surmised that such a line of questioning could be of no help to the client. His third revelation came following the failed family therapy with a distressed mother and son. Following multiple attempts to guide the mother to insights into her rejection of her own son, Rogers finally became aware that the core problem was not with the mother, but rather the relationship between the parents. This led Rogers to the conviction that perhaps the client, and not the therapist, is the best guide to therapeutic goals and outcomes (Demorest, 2004).

Rogers worked as a child psychologist for 13 years prior to assuming his first academic position at Ohio State University. It was during this time that he realized that he had a novel approach to offer the field of psychology. First introduced during an invited talk at the University of Minnesota, his revolutionary critique of traditional methods of psychotherapy, framed in the lecture titled, "Newer Concepts in Psychotherapy," launched a furor of controversy. This hostile response to his ideas led him to begin work on his first book, *Counseling and Psychotherapy: Newer Concepts in Practice* (Rogers, 1942).

It was at Ohio State that Rogers set out to demonstrate the effectiveness of his non-directive therapeutic approach through an extensive case study – the first of its kind to entail a complete audio account of verbatim client-therapist contacts – for Herbert Bryan. The client in this exemplar was a sexually conflicted young man who had internalized his parents' negative messages about himself and his sexuality. As the transcript of the eight sessions with Bryan demonstrate, using a non-directive and supportive approach, the client was

encouraged to both diagnose his own problem and prescribe his own treatment throughout the therapeutic process (Demorest, 2004).

Rogers' formal launch of client-centered therapy was in 1959 in a paper entitled, "A Theory of Therapy, Personality, and Interpersonal Relationships, as Developed in the Client-Centered Framework" (Rogers, 1959). At the center of this theory was his belief in the self-actualizing potential of all humans – the innate drive to become fully functioning persons.

He later went on to establish a counseling center at the University of Chicago where he worked for 12 years. Surrounded by a dynamic group of forward-thinking colleagues, he often described this time as some of his most creative and productive service up to that point. This period was marred only by his own mental crisis following two years of unsuccessful therapy with a deeply disturbed female client (Demorest, 2004). Rogers eventually left with the intention to take a position at the University of Wisconsin where he felt that he could have a greater impact on the field. This move proved in many ways, a disaster. Conflicts within the psychology program prompted Rogers to resign his position prior to moving to the Western Behavioral Studies Institute in La Jolla, California. Here, Rogers joined the free-spirited encounter movement and began working with more normal populations. His final career move in 1968 led him to join fellow humanistic colleagues in founding the Center for Studies of the Person (Thorne, 1992). He remained there for another 20 years actively engaging in therapy, performing research, and writing until the end of his life.

The Gloria Films

Rogers was often invited to compare his therapeutic orientation to that of other theorists and his work in this regard is featured in the book *Three Psychologies: Perspectives from Freud, Skinner, and Rogers* (Nye, 1996). But perhaps the most famous contrast in orientations was featured in a film entitled *Three Approaches to Psychotherapy I, II, and III* directed by Everett L. Shostrom. Designed as a psychotherapy training video that was released in 1965, Carl Rogers, Albert Ellis, and Frederick Perls (representatives of three prominent psychotherapeutic orientations of the time) demonstrated their therapeutic techniques on a young female client named Gloria. According to most accounts, Rogers gave a flawless performance. In fact, as the session began to wind down Gloria said, "Gee, I'd like you for my father." And Rogers replied, "You look to me like a pretty nice daughter." This moving moment became an ideal billboard advertisement for his own theory. Moments after the session with Rogers, Gloria announced that, "All in all I feel good about this interview." And yet, after experiencing all three sessions, Gloria indicated that she gained the most from her more adversarial work with Perls (Weinrach, 1990). The debate as to why Gloria made this determination remains unanswered.

Learner-centered Teaching

Later in his life, Rogers extended his person-centered orientation to other applications such as political mediation and even education. The Learner-Centered Model of teaching resembles classical person-centered approach in its interpersonal orientation. Published posthumously, Rogers and Harold Lyon collaborated on a book, *On Becoming an Effective*

Teacher – Person-centered Teaching, Psychology, Philosophy, and Dialogues with Carl R. Rogers and Harold Lyon, which outlines the findings of four formative pedagogical studies conducted over 20 years in 42 US states and six countries. The results suggest that teachers who demonstrate the features of empathy, genuineness, and positive regard in their interpersonal interactions with students have more positive effects in terms of student outcomes including attendance, achievement scores, interpersonal functioning, and rates of violence (Rogers & Lyon, 2014).

See Also

Abraham H. Maslow
Clinical Applications of Humanistic Theory of Personality
Mindfulness
Self-concept, Expressions of the

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George Alexander Kelly was born on April 28, 1905 in Perth, Kansas. His childhood education was sporadic, and he was mainly homeschooled until he moved in with his uncle in Wichita, Kansas to attend high school. When George was 16, he transferred to Friends University academy where he took a combination of academy and college courses. After three years at Friends University, George Kelly transferred to Park College in Parkville, Missouri. He graduated in 1926 with a bachelor's degree in physics and mathematics. He went on to earn his master's degree in educational sociology, with labor relations and sociology minors from the University of Kansas in 1927. In the late winter of 1927–1928, he was offered a teaching position as a professor of Psychology and of Speech at Sheldon Junior College in Sheldon, Iowa. After a year and half at Sheldon Junior College, Kelly went to Edinburgh, Scotland to study education on an exchange fellowship. In 1930, he received his BEd from the University of Edinburgh. In 1931, he received his PhD in Psychology from the University of Iowa.

Later that year, George began teaching Psychology at Fort Hays State College. At this time, he was confronted by the distress people endured as a result of the Great Depression, and shifted his focus to, what he saw as the most needed of psychological services, clinical psychology. He opened the school's first Psychology Clinic, of which he was named director. The clinic offered free diagnostic, therapeutic, and assessment services to anyone in need. About two years later, Kelly, and a group of his students, started bringing clinical services to the teachers, parents, and children at schools across western Kansas. His experiences in the clinics had a significant impact on his work and between the years 1935–1940 Kelly published a collection of papers and abstracts concerned with the issues he saw in the clinical setting. Topics such as the everyday issues of clinical diagnosis, the use of diagnostic testing, clinical psychology in schools, and the developmental concerns of students, parents, and teachers were among those covered in these works (Krapp, 2005). These writings shed light on the influences the clinic at Fort Hays and the traveling clinics had on his thinking. Although Kelly later became known for his contributions to personality psychology, it was in clinical psychology that Kelly's unique contributions began. His 12 years at

Fort Hays resulted in more than 20 clinics a year at a collection of permanent branches that were established throughout Kansas (Chiari, 2017). In the first 20 years of the psychology graduate program, about 20 master's degrees were awarded, 15 of which were supervised by Kelly, and to this day Fort Hays State University still offers support services for students, faculty, and staff at their clinical center named after George Kelly (Chiari, 2017).

In 1943, George Kelly was commissioned to the United States Navy where his research ranged from instrument panel design to other issues of applied clinical psychology, like selection methods for naval cadets. In 1946, he was selected to be Professor and Director of the Clinical Psychology program at Ohio State University, where he remained for 19 years. In 1955, he published a two-volume series, *The Psychology of Personal Constructs,* outlining his theory of personality and its application in the clinical setting. Upon its publication, Kelly's work was recognized as a major development in the study of psychotherapy and personality psychology. He received invitations to lecture all over the world and held visiting appointments at many universities such as Harvard (1960) and Princeton (1962) (Chiari, 2017). In 1965, Abraham Maslow invited Kelly to serve as the Riklis Chair of Behavioral Science at Brandeis University in Waltham, Massachusetts. He wrote several manuscripts while he was at Brandeis, one of which "A Brief Introduction to personal construct theory" was published three times. Kelly was a charter member of the American Board of Examiners in Professional Psychology (ABEPP), as well as serving as its first vice-president, and subsequently its president. He was elected president of the Consulting Division of the American Psychological Association (APA) in 1954, and of the APA Clinical Division in 1956–1957. On March 6, 1967 George Kelly passed away from complications after a gall bladder surgery.

Kelly's work and contributions to the field are considered by some to be one of the greatest contributions of the decade to the theory of personality psychology (Fransella & Neimeyer, 2005). He proposed his personal construct theory (see Personal Construct Theory of George A. Kelly) at a time when psychoanalysis and behaviorism were the dominant perspectives in the field. When humans were seen as the products of their reinforcements and punishments (behaviorism) or their childhood experiences and unconscious desires (psychoanalysis), Kelly saw people as taking an active role in how they observe and interpret their surroundings. A fundamental belief of Kelly's that impacted his theory was that people created themselves and could re-create themselves if they had the courage and imagination to do so. Kelly's theory is a person-centered theory of personality. A person-centered theory, stems from Carl Rogers' person-centered therapy, believes individuals have unique perceptions of the world, and they use those unique perspectives to help them make sense of their dilemmas (Holosko, Skinner, & Robinson, 2008). George Kelly's theory of personal constructs agrees with this and suggests that people develop their own personal ideas about how the world works and then use those personal ideas to make sense of their observations and experiences. This differs from other person-centered theories because it does not impose its own set of theoretical concepts. Instead, personal construct psychology respects people's own interpretations of themselves and of their lives. This contrasts with other popular theories of personality that put the sense making of a client's experience on the psychologist. Kelly rejected this popular belief that the therapist's interpretation of a client's experience was the key to change because he realized that the key to change lay in what the clients did with the therapist's interpretations. The only condition for useful

interpretations by a therapist was that it be relevant to the client's problem and hold novel implications for a potential solution (Fransella & Neimeyer, 2005).

Personal construct theory functions under the assumption that we see the world as being real and the psychological processes we have are based on our personal versions of that reality. The personal versions of reality are people's personal constructs. Constructs are not permanent, but rather are subject to revision and change as our life experiences change the perception we have of the world around us. Additionally, all of the events that occur in the world are open to multiple interpretations, which Kelly referred to as constructive alternativism. Kelly believed that when making sense of a situation or event, an individual has the ability to choose the construct they wish to use, which can happen in real time as the event occurs, but can also happen via reflection allowing the person to look back and change their view of the event. George Kelly believed that human beings are a lot like scientists, seeking to understand the world around them through making predictions and then using their experiences to validate or invalidate those predictions. He argued that people interpret a situation in a particular way and then act deliberately with those interpretations in mind. Modifications of an action are a result of whatever outcome the individual expected through their experience. Therefore, the individual has used his or her interpretation as a scientific hypothesis, with the subsequent actions resembling scientific research or experiments (Krapp, 2005).

George Kelly believed that as individuals live their lives they perform experiments that test their personal constructs. If the experiment works, the person receives validation for that construct, ultimately strengthening their beliefs. If it does not work, their construct is invalidated which pushes them to change their beliefs to better fit the world they live in. Kelly (1963) also made a point to differentiate validation from reinforcement by explaining that a person who predicted they would win $10 from a wager, but won $15 would still be distressed because their prediction was not verified. This system of prediction making and verification is important because according to personal construct theory, people experience the world around them through their personal constructs. As individuals go through their day-to-day lives, their experiences are constantly validating, or invalidating those constructs, which are ultimately shaping their behaviors, feelings, and thoughts.

A person's psychological processes are exhibited by the ways in which that person anticipates events, suggesting that people move, or have a motivation, toward a better understanding of what will happen. Kelly believed that the constructs people use are chosen because they reflect things that occur frequently in their experience. He also believed that people tend to hierarchically organize their constructs so that more rudimentary constructs lie at the base of the hierarchy and more intricate ones lie on higher levels. Constructs that have been validated are stored away for future use. Ones that have been invalidated, must be reconsidered to better determine when and how to use it, whether it needs reconstructing or refining, and in some cases whether it should be abandoned all together. Constructs are dichotomous, or exist of two opposing sides. The side of the construct that is applied to a given situation is known as the emergent pole and is on the likeness end, and the side not being applied is the implicit pole and is on the contrast end.

To effectively identify and understand the ways in which an individual construes their experiential reality, Kelly devised the repertory grid. This technique is made up of three parts: elements, constructs, and links (Tan, 2002). A topic is selected and is usually about

some part of the individual's experience, (i.e. personal relationships). Examples or instances of that topic are listed, which are referred to as the set of elements (i.e. father, boss, wife, friend). Once the elements are listed, the client considers the elements three at a time and is asked to distinguish how two are alike but are contrasted to the third (Tan, 2002). For example, a client may group their father and wife together because they are calm, but distinguish their boss as a contrast because they are tense. Thus, the construct of calm/tense has been identified. Then the client rates the elements on the construct, usually with a five- or seven-point scale. This continues as the client works through further triads, thus extracting additional constructs until no further constructs can be obtained. The elements are then rated across constructs, providing insight into the links between different elements across the elicited constructs (Tan, 2002). The repertory grid can be analyzed to provide accurate, operationally defined articulations of an individual's constructs or personal values.

See Also

Personal Construct Theory of George A. Kelly

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Agreeableness

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Personality is the collection of stable characteristics that make up an individual. Social scientists, especially psychologists, focus on examining core individual differences that comprise personality. In the absence of complete consensus about the structure of personality, the Five Factor Model of personality is widely regarded as the most comprehensive representation of the major domains of human personality (McCrae & John, 1992). These five superordinate domains include agreeableness, a latent variable expressed in behaviors indicating generosity, trustfulness, and kindness.

Graziano and Eisenberg (1997) describe Agreeableness as the domain of personality concerned with individual differences in the motivation to maintain positive interpersonal relationships with others. Graziano and Tobin (2013) formally define Agreeableness as a "set of interrelated dispositions and characteristics, manifested as differences in being likable, pleasant, and harmonious in relation with others" (p. 347). Agreeableness is seen as a graded continuum, but it is often useful to discuss attributions of persons at the extreme ends (e.g. persons low in agreeableness vs. persons high in agreeableness). Theoretically, Agreeableness maps onto the major motivational system of communion, or the desire for unity, intimacy, and solidarity with others (Wiggins, 1991). Individuals high in Agreeableness are better liked by peers and have more friends relative to their peers (Graziano & Tobin, 2009; Jensen-Campbell et al., 2002), likely because persons high in Agreeableness tend to find similarities with others, have fewer prejudices, and experience more empathy toward others (Graziano, Bruce, Sheese, & Tobin, 2007; Graziano, Hair, & Finch, 1997; Graziano, Habashi, Sheese, & Tobin, 2007; Habashi, Graziano, & Hoover, 2016).

In modern scientific research, systematic examination of agreeableness began as a result of reliable empirical regularities arising in descriptions of others, and later in self-descriptions (Digman & Takemoto-Chock, 1981). Other labels used to describe the dimension are *tender-mindedness*, *friendly compliance versus hostile noncompliance*, *likeability*, and even *love versus hate*. Research shows that persons who are described as "kind" are also described

as "considerate" and "warm," implicating a superordinate dimension that is relatively stable over time and related to a wide range of thoughts, feelings, and social behaviors. Agreeableness appears in free descriptions and in ratings in every cultural group studied so far (Kohnstamm, Halverson, Mervielde, & Havill, 1998).

Measuring Agreeableness

Agreeableness is typically assessed through self-report measures. Several psychometrically sound measures are available in the US and over 40 other languages (see the Goldberg et al. (2006) International Personality Item Pool (IPIP) at ipip.ori.org/newItemTranslations.htm). Measures include one-word adjective markers (Goldberg, 1992) and questionnaire formats such as the Big Five Inventory (BFI; John & Srivastava, 1999) or one of the versions of the NEO (Costa & McCrae, 1988). Beyond self-report measures, differences in Agreeableness can be measured through observation by knowledgeable informants such as spouses (Costa & McCrae, 1988), employers (Hogan, Hogan, & Roberts, 1996), and teachers (e.g. Digman & Takemoto-Chock, 1981). Overall, the measures show some variation, but more remarkable is their convergence. Samples of young children and non-US samples tend to yield lower internal consistency scores for Agreeableness than do American and European samples (e.g. Soto, John, Gosling, & Potter, 2008).

Given that it is generally considered better to be kind, warm, and considerate, self-reported agreeableness could be mistaken for "social desirability" and self-favoring bias. After all, self-reports of kindness and generosity may be reflecting a different latent variable; it may be masking darker motives to look good in the eyes of others. Systematic investigation, however, does not support the hypothesis that agreeableness is primarily an expression of self-favoring biases (Graziano & Tobin, 2002).

Agreeableness Research and Theory

Like most psychological constructs, Agreeableness can be understood in terms of thoughts, feelings, and behaviors that are related to it. Overall, agreeableness seems to be positively related to adaptive social behaviors (e.g. conflict resolution, emotional responsiveness, helping behavior) and negatively related to maladaptive social behaviors (i.e. prejudice, stigmatization). These relations have been found both in correlational studies as well as in stronger experimental ones.

In terms of outcomes, Agreeableness has been linked to a range of seemingly diverse criteria. One outcome that is consistently related to Agreeableness is conflict resolution. Graziano, Jensen-Campbell, and Hair (1996) found that most of their participants endorsed negotiation and disengagement tactics in resolving conflict, but the difference between persons low and high in agreeableness was greatest when destructive tactics (e.g. power assertion tactics such as physical force) were considered. In particular, persons low in agreeableness reported that destructive tactics were generally more acceptable than did their peers. These findings have been replicated with various methodologies using independent samples ranging in age from childhood through adulthood (e.g. Field, Tobin, &

Reese-Weber, 2014; Gadke, Tobin, & Schneider, 2016; Graziano et al., 1996; Jensen-Campbell & Graziano, 2001). Further, individuals high in agreeableness tended to perceive less conflict in their social interactions, report more liking of interaction partners, elicit less conflict from their partners, and are perceived by others as displaying less tension in their interactions relative to their peers. Thus, across age ranges and methodologies, agreeableness is linked to constructive resolution of conflict, presumably because of its underlying motives to get along with others. Similarly, Agreeableness is inversely linked to prejudice (Graziano, Bruce et al., 2007). Individuals high in Agreeableness are less likely to discriminate against out-group persons relative to their peers.

Processes of emotion are also tied to Agreeableness. Tobin, Graziano, Vanman, and Tassinary (2000) found that individuals high in Agreeableness experience stronger emotions and make greater efforts to regulate their emotions when asked to communicate about their experiences following exposure to emotionally evocative images than do their peers. One emotion in particular, empathy, is related to Agreeableness. Among the five dimensions of personality, Agreeableness is the only one that is significantly correlated with both of the major aspects of prosocial emotions, namely empathic concern and personal distress (Graziano, Habashi et al., 2007). Individuals high in agreeableness report greater ease taking another person's perspective and feeling the distress of others, but not necessarily in experiencing self-focused negative affect when observing victims who are suffering. Beyond their reported emotional experiences, Agreeableness is also tied to behaviors associated with empathic responding: Individuals high in Agreeableness are more likely to offer assistance to a victim in need than are their peers.

Future Directions in Research, Theory, and Methodology

Drawing on Dijker and Koomen's (2007) work, we have recently used the Opponent Process Model to explain the processes underlying Agreeableness (Graziano & Habashi, 2010; Graziano & Tobin, 2009, 2013). In this model, two systems based in human evolutionary history are at work simultaneously: Fight/Flight and Care. The older component, the Fight/Flight system, is activated first and without conscious deliberation, priming a system to flee from danger, or to fight if forced to do so. The second system, Care, is newer in evolutionary time and is associated with kin selection. It has the capacity to suppress the Fight/Flight system and has been theoretically linked to the personality dimension of Agreeableness. That is, Agreeableness has been conceptualized both as fairly direct expressions of Care and as a product of Care-based suppression of Fight/Flight. Concretely, persons high in agreeableness may feel empathic concern directly for victims of misfortune (Graziano, Habashi et al., 2007), but they may also have skills with suppressing (perhaps using effortful control) negative reactions to traditional targets of prejudice generated by their Fight/Flight system (Graziano, Bruce et al., 2007). Graziano and colleagues have adapted the Solomon and Corbit (1974) Opponent Process Model to explain the dynamic processes underlying the connections between Agreeableness and diverse outcomes. Additional research is necessary to examine the extent to which this conceptualization of Agreeableness is supported.

See Also

Big Five
Empathy, Personality Correlates
Goldberg vs Costa/McCrae Five Factors
Motivation (achievement, affiliation, power)
Personality and Prejudice
Theoretical and Methodological Issues in Personality Research, General Concerns and
Considerations
Trait Theory of Allport

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Individual Psychology of Alfred Adler

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Firsthand experience with the ravages of World Wars I and II presented many challenges to Alfred Adler and his contemporaries. Aside from obvious economic, political, and social challenges, individuals were forced to reckon with their views of humanity. Are we, as the brutalities of the war suggested, inherently selfish and cruel, or is there some goodness in us? This central question arguably serves as a key distinguisher between Adler's and Freud's views. In his *Civilization and Its Discontents*, Freud (1930/1961) had famously insisted that underneath it all, humans are "savage beasts." Freud further asserted that when the constraints of a civilized society are removed, "man is a wolf to man." This aggressive instinct, according to Freud, coupled with the (mostly) unconscious sexual drive of humans, result in destructive and deadly consequences if left unchecked.

Adler instead claimed that humans are capable of acting in socially just ways, and not just when we are repressing our savage instincts. Moreover, Adler did not believe that repression resulted from civilized society's attempts to restrain instinctual drives. Adler instead claimed that all humans have the potential for other-centered concern and that mentally healthy individuals learn how to adapt their drives in socially accepted ways. Adler's belief in positive human potential has led some researchers (e.g. Watts, 2015) to suggest that Adler could be considered the original positive psychologist. These distinctions in underlying assumptions of the human condition are one way we can understand how Adler's theory continued to develop after his resignation from Freud's Psychoanalytic Society in 1911.

In contrast to Freud's assumption that humans are motivated primarily by sexual and aggressive impulses (the pleasure principle), Adler proposed that our basic desire and goal is to belong and feel significant (Fisher, 2001). This assertion, along with many others (e.g. people are motivated by social forces and often have feelings of inferiority) have become so mainstream that Adler's origination of those ideas has often been forgotten (Mosak & Maniacci, 1999). Adler was sometimes criticized for the simplicity and commonsense nature of his insights. Yet, close consideration of Adler's ideas reveal the depth of his

observations. Indeed, as noted by Mosak and Maniacci (1999), the simplicity of Adler's ideas belie their actual complexity.

Tenets of Individual Psychology

Adler's approach is alternately called "Adlerian Psychology" or "Individual Psychology." The word "individual" in Adler's theory is sometimes erroneously understood as deriving from a focus on individuals (Watts, 2015). In fact, the term is derived from the Latin, "individuum," meaning indivisible. Adler stressed the unity of the person. In contrast to Freud's reductionist idea that humans are comprised of different conflicting impulses, Adler maintained that humans should be perceived in a holistic manner, emphasizing the interrelatedness of persons' cognitive, affective, and behavioral dimensions.

Life Style/Style of Life

Adler's view of personality was centered on what he called style of life. This consists of a personally constructed metanarrative that a person develops throughout life from their unique experiences, motivations, personal beliefs, and goals (Watts, 2015). This metanarrative helps an individual face life's challenges and tasks. It is refined throughout life and is influenced by one's socio-cultural context, including both the larger culture and the culture of one's family. For example, within the family culture, one's position in the family, i.e. one's "psychological birth order," influences one's construction of their life style.

Just as Freud had stressed the importance of early family relationships in the development of personality, Adler maintained that early family experiences help shape our life style. For example, Adler noted that one's inclination to trust or distrust others is influenced by early experiences with family members who prove to be either generally trustworthy or not. And though Adler acknowledged these early influences, he did not believe that one is determined by them to the degree that Freud claimed. Instead, Adler believed that the impact of early family experiences can also be altered with time and other experiences because we are active agents in our growth. Thus we are proactive, as opposed to reactive, with regard to the development of our style of life (Carlson et al., 2006). This proactivity is what Adler referred to as the "creative self."

According to Adler, then, humans' personality growth is a very subjective and also hopeful process. Rather than simply reacting to the impact of life's situations; we create realities by how we perceive what has happened. This phenomenological perspective of the world means that perceptions can change, and humans are not victims chained to their past negative experiences. Instead, our experiences can be re-created and perceived in a new way (Foundational Adlerian Principles, n.d.).

In contrast to Freud's determinist perspective, Adler asserted that humans are proactive agents in their lives, capable of making choices and assuming responsibility for those choices. Adler acknowledged the influences of environment and genetics, but maintained that the metanarrative that guides one's life can be altered significantly by choice.

Gemeinschaftsgefuhl (Community Engagement/Social Interest)

Adler's focus on the power of individuals to create their personal life styles is coupled with an emphasis on the relational nature of humans, which is central to Adler's theory. Indeed, Adler noted that persons cannot be adequately understood outside of their social context (Watts, 2015). Adler's concept of gemeinschaftsgefuhl has two specific aspects. *Community feeling* refers to a sense of belonging, empathy, caring, compassion, etc. Those affective responses lead to *social interest*, the other important aspect of gemeinschaftsgefuhl. Social interest refers to behaviors and thoughts, such as care for the poor and marginalized, that contribute to the common good.

Social interest results in a sense of connection and embeddedness for the individual (Barlow, Tobin, & Schmidt, 2009). It is learned and practiced from childhood on. Adler claimed that sufficient social interest is essential to positive mental health and the ability to fulfill life's three greatest tasks: occupation, social relationships, and love.

According to Adler, positive individual functioning is inextricably interwoven with social relatedness. Humans are driven primarily by relationships, and the meaning of one's life is related to the contributions one makes to the well-being of others (Stone, 2011). This assertion directly contrasts Freud's claim that humans are not disposed to do good to others and his limited interest in patients' social relationships other than ones that contributed to the patient's trauma.

Striving for Perfection/Superiority

Adler proposed that in addition to being socially motivated, humans wish to feel competent, but they often feel a deep sense of inferiority. Adler used the term *inferiority complex* to refer to feelings of incompetence. Sometimes this sense of inferiority is prompted by the limitations imposed by a physical ailment (as was the case for Adler), negative messages one has received from family members, a sense of one's own inferior performance in relation to someone else's, etc. Adler claimed that it is not these messages or situations themselves, but rather our interpretation of them that lead to the perceived reality that we are inferior. We long to overcome this feeling of inferiority and become a thriving member of the community. Unlike Freud, who claimed that humans are driven by the pleasure principle, Adler maintained that we are driven by the "will to power," which refers to the person's creative drive to better themselves (Ansbacher & Ansbacher, 1964).

Adler proposed that humans attempt to satisfy their natural human tendency for self-mastery and competence by either striving for perfection or striving for superiority (Watts, 2015). He claimed that mentally healthy individuals deal with feelings of inferiority by *striving for perfection*, which involves striving toward a greater sense of competence for oneself and others. Individuals' social interest is related to many factors (e.g. hope, optimism, moral reasoning, etc.) that are indicators of good mental health (Barlow, Tobin, & Schmidt, 2009). *Striving for superiority*, in contrast, entails a more narcissistic, selfish attempt to overcome feelings of inferiority by striving to be superior to others with little to no consideration for their good. Adler proposed that this approach is characteristic of those who are maladjusted and leads to poorer mental health and to destructive social relationships.

Unlike other contemporary theorists, then, Adler emphasized the role of community feeling and social interest in humans' striving to overcome feelings of inferiority. As noted earlier, because this striving occurs in a relational context it could be either socially useful or destructive.

Therapeutic Applications of Individual Psychology

Alderian therapy is optimistic, centering on human strength and potential. This therapeutic approach views people as creative and capable of progress and focuses on the importance of social interest in fostering both positive individual mental health and behavior that leads toward the common good. The main objective of therapy is to help the client replace their destructive, exaggerated self-protective stance with positive social contribution (Alfred Adler: Theory and Application, n.d.). Clients are encouraged to see how they may be contributors to the greater social context.

Adlerians' growth model of personality perceives clients as discouraged rather than sick. Because discouragement is believed to be a main contributor to emotional distress, Adlerian therapy is about encouraging rather than curing the client (Watts, 2015). This encouragement mainly takes the form of active listening, positive regard, noting clients' strengths, aiding clients' attempts to alter negative thinking patterns, etc. This approach assumes that encouragement helps clients believe what they thought was impossible (Alfred Adler: Theory and Application, n.d.). Encouragement leads to increased confidence and gratification in the client, thereby increasing cooperation with the therapist.

Adlerian therapy acknowledges that the unconscious is important, but assumes that conscious processes are more powerful (Ansbacher & Ansbacher, 1964). In fact, rather than construing the unconscious as a noun, like Freud did, Adler referred to the unconscious as an adjective, denoting something "not yet understood" or something we have not yet developed in clear concepts. For example, a client may not be aware of the motives for their destructive social behavior. In this case, Adlerian therapy would help the person bring these unconscious motives to light and then focus on conscious evaluation and challenge of the faulty premises that motivate negative social interactions.

Adlerian therapy is used with a broad range of psychological disorders. It follows both short-term and long-term formats, with individuals as well as couples and families. Its strategies may be broadly construed as psychodynamic. Yet the strategies of cognitive-behavioral, systems, and positive psychology are often unwittingly built upon Adlerian foundations. Mosak and Maniacci (1999) noted that there has been so much integration of Adler's ideas into contemporary psychology that the proper question is not whether one is an Adlerian, but how much of an Adlerian one is (p. 8).

See Also

Culture and Personality
Personality in Culture

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Animal Personalities

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Introduction

Many people would likely be comfortable with the notion that some mammals (e.g. monkeys, dogs, cats, perhaps lab rodents) have personalities, but might be surprised to learn that animal behaviorists have quantified personalities in all major vertebrate groups, and in numerous arthropods (insects, spiders, crabs, lobster), mollusks (octopus, squid, snails), and other invertebrates including organisms like sea anemones that lack a brain. To clarify, for animal behaviorists, the concept of "personality" differs from the APA's definition that "personality refers to individual differences in characteristic patterns of thinking, feeling and behaving". Instead, for animals the concept focuses on statistically repeatable patterns of behavior per se, usually focusing on ecologically important behavioral axes: boldness, aggressiveness, activity, sociability, and exploratory tendency (Reale et al., 2007). That is, we find that within any given species, some individuals tend to be consistently bolder, or more aggressive, or more sociable etc. than others.

Quantifying Animal Personalities

Animal personalities are typically quantified by observing each animal's behavior (at least twice) under standardized assay conditions. For example, in the open field assay, each individual starts in a safe refuge. Individuals that leave more quickly are termed "bolder," and those that cover more area after leaving are more "active" or if it's a novel space, more "exploratory." Boldness is often further assessed by exposing individuals to a threat (e.g. a simulated predator attack).

When different assays involve different ecological contexts (e.g. fighting, mating, and avoiding predators), we test for "behavioral syndromes," behavioral correlations across ecological contexts (Sih et al., 2004). For example, individual differences in aggressiveness in fights have

been found to be positively correlated to male aggressiveness toward females (sexual coercion), negatively correlated to parental care effort (feeding of offspring), and positively correlated to boldness in the presence of danger.

Many behavioral type (BT) axes in animals relate to variation in a "risk-reward trade-off." Individuals that are more bold, aggressive, and active take more risks with potentially larger associated rewards. Shy, unaggressive and inactive individuals take fewer risks with smaller associated rewards. Animal personality then mediates a growth-mortality, life-history trade-off, with bolder individuals growing quickly and reproducing at a younger age, versus cautious ones growing slowly but surviving longer to reproduce at a later age (Reale et al., 2010). The fitness of each BT typically depends on the environment; e.g. bold, aggressive individuals often do well in resource limited, competitive environments with low predation risk while cautious, unaggressive ones are favored in high predation environments.

Genetic Mechanisms

Heritabilities of BTs have been measured for numerous animals. Although heritability of behavior can be quite low in animals, the heritability of personality is typically much higher. A recent meta-analysis found that approximately 52% of animal personality variation is due to additive genetic variation (Dochtermann et al., 2015). Evidence of genetic correlations between behaviors has also been observed in animal models.

Various candidate genes that are studied in humans (and rhesus monkeys and other model systems) also appear to influence variation in animal personality. In several vertebrate taxa, the dopamine receptor (DRD4) appears to play a role in modulating exploratory and risk seeking behavior, and the serotonin transporter (SERT) appears to play a role in modulating aggression, anxiety, harm avoidance, dominance, and sexual behavior. Other vertebrate candidate genes associated with variation in BT include genes associated with the neuropeptides of the arginine vasotocin (AVT) family. For invertebrates, candidate genes linked to different BTs have been suggested for aggression in fruit flies, honeybees and crayfish, among others. Most of the work on these candidate genes has been on model systems often using laboratory selection lines. However, growing evidence suggests the importance of these neurotransmitters in regulating personality in various non-model vertebrates. As with humans, the percentage of variation explained by candidate genes is typically low, which is not surprising since in most cases, many genes are thought to influence behavior.

Neuroendocrine and Physiological Mechanisms

Different BTs are associated with distinct patterns of autonomic nervous and endocrine activity (Koolhaas et al., 2010). In mice and rats, aggressive and proactive males are characterized by high reactivity of the sympathetic nervous system and high baseline activity and stress reactivity of the HPA-axis. Outside of mammalian models, post-stress plasma cortisol levels have been correlated with coping style behavior in several species of fish and birds.

pace of life
slow ←——————→ fast

life history
long life ←——————→ short life
delayed reproduction ←——————→ precocious reproduction
low growth rate ←——————→ high growth rate

behavior
low activity ←——————→ high activity
low level of aggressiveness ←——————→ high level of aggressiveness
shy ←——————→ bold
neophobic ←——————→ neophilic
thorough exploration ←——————→ superficial exploration
philopatric ←——————→ high dispersal
social ←——————→ asocial
high level of parental care ←——————→ low level of parental care

physiology
high HPA axis reactivity ←——————→ low HPA axis reactivity
low sympathetic system reactivity ←——————→ high sympathetic system reactivity
high parasympathetic system reactivity ←——————→ low parasympathetic system reactivity
low metabolism ←——————→ high metabolism
low sensitivity to oxidative stress ←——————→ high sensitivity to oxidative stress
high immune response ←——————→ low immune response

cognition
slow sampling ←——————→ fast sampling
high accuracy ←——————→ low accuracy
risk averse ←——————→ risk prone

Figure 1 A summary of traits, including behavioral types, associated with slow versus fast lifestyles. Adapted from Reale et al. (2010) and Sih and Del Giudice (2012).

Differential expression of neurotransmitters and neuropeptides can also have an important role in BT differentiation. For example, high levels of aggression are associated with low levels of serotonin in lab rodents and stickleback fish. Vasopressin and oxytocin signaling also play a role in governing proactive or reactive coping styles in mammals.

Recent work suggests that metabolic rates are often related to consistent individual differences in behavior (Biro & Stamps, 2008; Careau et al., 2008). This hypothesis is connected to a Pace-of-Life framework proposed by Reale et al. (2010), which suggests that proactive animals have higher metabolic rates than reactive individuals. As noted earlier, activity, exploration, boldness, and aggressiveness are considered to be energetically costly, "high risk, high demand, high reward" activities (see Figure 1).

Effects of Early Experience on Personality

Early social stress (e.g. separation from mothers) can result in personalities that are poorly adapted to future social life. This has been particularly well documented in mammals but has also been examined in other vertebrates (e.g. fish) and invertebrates (e.g. crickets).

Experimental exposure of juveniles (or even embryos) to danger (e.g. predation risk) has also been shown to effect later personality (e.g. fearfulness); much of this work has been on fish.

A recent subject of interest has been transgenerational plasticity; here, the effect of stresses experienced by parents on the development of their offspring's personalities. For example, female stickleback fish exposed to predator cues for just a few minutes produce eggs with higher levels of cortisol, and thus have offspring with fearful personalities. Perhaps even more interestingly, male sticklebacks exposed briefly to predator cues apparently alter their parental care in ways that also shape their offspring's future behavior.

On the conceptual front, an exciting focus has been on whether the effect of early experience on the development of personality is adaptive (Sih, 2011). An earlier view was that early stressors (e.g. social stress, or exposure to danger) produce poorly adjusted BTs. An alternative view posits that early stress prepares organisms for coping with stress later in life. For example, the "adaptive tuning" model suggests that there is no optimal level of stress, instead as long as the early environment is a good predictor of the future environment, the level of stress experienced during development should prepare the individual to respond appropriately later in life.

Cognition and Learning

Many aspects of cognition, including perception, learning, memory, and decision making, have been well studied in non-human animals. Historically though, the emphasis has been on species-level abilities and interspecific differences in cognition. The recent interest in animal personality, however, has led to new focus on consistent individual differences in animal cognitive abilities. One hypothesis is that the relationship between an animal's personality and its cognitive style depends on where it falls on a speed-accuracy trade-off (Sih and Del Giudice, 2012). This trade-off suggests that an individual can either make decisions quickly or accurately, but not both. Individuals that are bold, aggressive, and asocial may be more likely to make decisions quickly (with less time taken to collect and carefully process information) with less accuracy than shy, less aggressive, more social individuals. BTs that emphasize speed over accuracy might also be more risk prone (as opposed to risk averse) and impulsive.

Social Behavioral Ecology and Personality

Many personality traits are either only expressed in the presence of other individuals (e.g. aggressiveness) or are affected by the social environment. In turn, personality affects social dynamics for mating, contests, cooperation, and social foraging. Personality thus is interwoven with social behavioral ecology.

Indeed, social interactions might be a key factor that generates and maintains consistent personalities in animals. The concept of "social niche specialization" proposes that an animal exhibits a stable personality because others within a social group induce the individual to consistently fill a specific role with an associated BT (Bergmuller and Taborsky, 2010). The role might involve a social rank, a position in the social network, or a role in group foraging or antipredator behavior.

The mix of personalities in a social group, or the personality of key individuals can have major effects on group social dynamics. An exciting recent approach has involved the experimental creation of groups with different mixes of personalities (e.g. groups with different proportions of aggressive individuals) to quantify effects on mating dynamics, collective foraging, colony defense, intergroup competition, collective learning, and ultimately, group-level survival.

Ecological Implications

Animal personalities and behavioral syndromes can also have important implications for ecology (Weissing et al., 2012; Sih et al., 2012). BTs influence survival and reproductive success and thus population growth rates. The outcome of a predator-prey or competitive encounter can depend on the BTs (boldness, aggressiveness) of both species, and most interestingly, on the interaction between their BTs. Disease transmission can also be mediated by BTs through effects on host social networks. More active and social hosts tend to have larger social networks, and thus have higher potential to both pick up and spread socially transmitted diseases.

At a larger spatial scale, personality-dependent movement patterns can influence ecological invasions. For example, more aggressive and asocial individuals might have a higher tendency to disperse and colonize new habitats, and in many cases, bolder, more aggressive, or asocial individuals might thrive better in newly invaded sites. Indeed, conventional wisdom suggests that pioneers in the American West might have had these personality traits. In contrast, if cooperation is necessary, more social and less aggressive individuals might be necessary for successful colonization.

BTs also play a role in governing behavioral responses to human-induced rapid environmental change (HIREC). More exploratory or more flexible individuals tend to respond better to novel conditions. In particular, an active area of interest is in the influence of BTs on animal tendencies to urbanize. Bold or aggressive BTs are often more likely to tolerate humans and colonize human habitats, but boldness can obviously be detrimental if novel situations are dangerous.

See Also

Gene environment interaction
Personality in non-humans

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Conscientiousness

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Introduction

Conscientiousness refers to a group of personality traits that represent a person's tendency toward being self-controlled, persistent, industrious, and orderly. It is one of the major factors of the Big Five model of personality, and predicts numerous desirable outcomes. Conscientiousness is an important part of the moral and social compass of society.

History and Assessment

Conscientiousness-type traits have appeared throughout history in philosophy, theology, education, and business (Ryans, 1939). Across the 1900s, it was conceptualized as a moral characteristic, reflecting a strong work ethic and being a socially responsible citizen, which aligned well with the values and work ethos of many Western countries. Measurement and conceptualizations of conscientiousness went hand in hand. Items related to conscientiousness were included in surveys across the twentieth century. Beginning in the 1920s, several researchers developed behavioral tasks that tested how long a participant would persist in a task. For instance, the Character Educator Inquiry introduced a series of eight tasks to study persistence, inhibition, and self-control in children, including story resistance, puzzle mastery, fatigue and boredom in mental work, solving a toy puzzle, and standing on one foot. Similar approaches later appeared through delay of gratification (e.g., Mischel's marshmallow task) and executive control designs (e.g., the Stroop test).

The twentieth century brought the dominance of factor analytic approaches to personality (Kentle, 1995). This involved compiling lists of adjectives, collecting self-ratings across diverse populations, and factor analyzing the responses. Based on survey questions, conscientiousness-type factors were identified that reflected moral qualities (e.g., maturity, good nature, kind by principle, tact) and persistence. Increasingly, a coherent five-factor structure emerged (extraversion/ surgency, agreeableness, conscientiousness,

emotional stability/ neuroticism, intellect/ openness), which became known as the Big Five (cf. John & Srivastava, 1999). While scholars disagree on the exact labels and the traits that fall within each domain, the model provides an organizing framework for considering associations between personality and other outcomes of interest, and dominates much of the research, theory, and practice related to conscientiousness.

Other approaches to assessing conscientiousness include behavioral observations, ratings of one's home or workspace, analysis of one's social media behavior and language, and correlated structures within the brain. Different methods are only moderately correlated; most likely different approaches capture different aspects of the person.

Structure

Conscientiousness lies on a continuum, with most people falling somewhere in the middle of two extremes. Conscientious individuals might be described as disciplined, dependable, diligent, organized, hardworking, careful, thorough, efficient, planful, and socially responsible. Individuals low in conscientiousness tend to be more impulsive, spontaneous, easy-going, irresponsible, disorganized, lazy, reckless, and indifferent.

From the Big Five perspective, personality is hierarchical in nature. At the highest level, conscientiousness groups together with agreeableness and emotional stability as a socio-emotional maturity factor. Facets cluster beneath the main factor, including discipline, order, and achievement-orientation. These facets include more concrete trait descriptors (e.g., self-control, organized, and diligent), which are manifested as specific behaviors (e.g., avoid a high-calorie dessert, keep workspace clean, pushing through an assignment until it is complete).

Benefits of Conscientiousness

Conscientiousness and its various facets has been linked to good physical and mental health, occupational success, stable marriages and families, less crime, and good citizenship behaviors (e.g., paying taxes, voting). It predicts longevity, resulting in an up to four-year advantage for those in the upper versus lower quartiles of conscientiousness (Kern & Friedman, 2008). However, at extreme levels, conscientiousness can become maladaptive, with the persistence, ambition, perfectionism, and achievement striving facets exhibiting strong correlations with the compulsivity, propriety, and workaholism domains of obsessive-compulsive personality disorder (Samuel & Widiger, 2011).

Pathways

Various factors correlate with both conscientiousness and subsequent life outcome. Some are mechanisms, some are moderators, and some are confounding variables. Base levels of conscientiousness are rooted in genetic and environmental factors (South & Krueger, 2014). Genetic propensities might manifest in different ways, depending upon the early

environment and subsequent life experiences. For example, secure attachments with the caregiver predict greater levels of self-regulation across childhood (Eisenberg, Duckworth, Spinrad, & Valiente, 2014), which in turn can set a trajectory toward more conscientious behaviors. Aspects of the social context, including socio-economic status, neighborhood safety, and aspects of the culture (including norms of what is socially acceptable) interact with a person's core tendencies to impact upon both the personality characteristics that a person manifests, as well as the acceptability of those behaviors in the society in which the individual resides.

Conscientious individuals are less likely to smoke, drink excessively, drive recklessly, and engage in high-risk activities. They are more likely to eat healthily, stay active, adhere to medical advice, and proactively take care of their health. They are more likely to be deliberate in how they spend their time and how they approach different situations. A conscientious individual might approach a holiday by carefully planning the itinerary, setting up reservations for travel and accommodations, pack extra clothes and food for the journey, and ensure that others know their plans, whereas less conscientious individuals might rely up on spontaneity. Some of the benefits that conscientiousness has might stem from the daily reduction of small risks, which add up over time to be protective.

Conscientiousness impacts how a person relates to and interacts with other people. Conscientious individuals are more likely to invest in work, family, religion, and volunteering (Lodi-Smith & Roberts, 2007), and experience better marital quality, lower rates of divorce, and social acceptance by others. Conscientious individuals are more adept at seeing and responding to the needs of others, and may be more attuned to the social context, identifying when a behavior is appropriate or inappropriate, and then showing the restraint to act accordingly. With a high drive for achievement, combined with an ordered approach toward getting things done, conscientious individuals are more likely to experience good work outcomes, including less unemployment, promotion, higher salaries, and being respected by colleagues.

Conscientious individuals also tend to take more active, approach-oriented approaches to stressors, seeing events as challenges instead of threats, and believing that they have the internal and external resources to cope (Carver & Connor-Smith, 2010). They are less likely to use substances to cope with stress, and make greater use of problem solving and cognitive restructuring techniques.

In sum, multiple pathways potentially connect conscientiousness to health and other outcomes. Personality impacts how a person behaves and thinks, as well as how a person experiences, makes sense of, and reacts to events throughout life (Caspi, Roberts, & Shiner, 2005), and these in turn impact the life outcomes that a person experiences.

The Dynamic Nature of Personality

Ratings on many of the personality questionnaires capture stable characteristics of the person. But personality is also dynamic in nature, varying across time and situations. An individual that is meticulous at work might live in a chaotic home. Traits manifest differently across contexts, and interact with experienced and constructed contexts, often in indirect, non-circular, and complex ways. Personality researchers have dealt with this complexity either by

aggregating across situations to remove the effect of context, or by bringing the person and situation together and searching for coherent explanations. Individuals seemingly have a signature style of stable, meaningful patterns in how their thoughts, feelings, and behaviors vary across situations (Mischel, 2004).

A challenge for the field is how to capture both the dynamic processes of the individual and stable individual differences, as well as better understand how conscientiousness impacts life outcomes. Fortunately, there is an increasing sophistication of data and methodologies available that can inform the inherent complexity of personality. For instance, numerous archival studies exist that have followed people over many years. These have mostly been studied separately, but with a move toward digitization and sharing of data, such studies can potentially be used to further explore what patterns matter most for different outcomes over time, as well as mechanisms and moderators involved.

As technology rapidly moves forward, there are growing possibilities for using electronically generated information, such as social media, electronic health records, mobile phone behaviors, among others, as unobtrusive measures of behavior, capturing how personality manifests in everyday life. By combining existing data, computational social science techniques, and rich personality theory, conscientiousness potentially can be studied in innovative ways that adequately capture its dynamic yet stable nature in a coherent manner.

The extent to which conscientiousness can be developed through intervention, and if so, what those interventions should entail, is mostly unknown. It is also unknown the extent to which changes in a person's level of conscientiousness will correspond with the benefits that have appeared in correlational studies. Interventions might target conscientious behaviors, the narratives that people construct of their lives, social structures that encourage conscientious behaviors, or specific facets of conscientiousness. The most effective approaches for intervention most likely depend in part on the context and individual.

Conclusion

Conscientiousness represents characteristics and behavioral patterns that allow an individual to persist through difficulty, resist temptation, set and meet goals, be thorough and reliable, maintain a sense of order, and exhibit a sense of responsibility to the self and the society in which one lives. It is valued across many cultures, and correlates with numerous positive, socially valued outcomes. Conscientiousness helps society run in an orderly fashion, and modern cultures will do well in continuing to support and develop conscientious citizens.

See Also

Big Five
FFM and Facets
Health and Personality
Schizoid Personality Disorder
Personality and Longevity
Revised NEO-Personality Inventory (NEO-PI-R)

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Cognitive-Affective Processing System (CAPS)

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Core Ideas and Theoretical Importance

The CAPS is a model of human personality proposed by Walter Mischel and Yuichi Shoda. Personality is conceptualized as a stable system of cognitive and affective features that (1) processes situational information and (2) uses this information to generate behaviors. Thus, the model rests on the basic assumption that behavior in any given situation results from the interaction of cognitive-affective features of the person, features of the situation, and the interaction of the person and situation (Mischel & Shoda, 1995, 2008).

This model was conceived in an effort to resolve a historical controversy between personality psychology and social psychology, referred to sometimes as the personality paradox. The personality paradox contrasts a fundamental tenet of personality theory, the idea of personality as being consistent over time, with a foundational observation from social psychology, that behaviors are inconsistent across situations. The CAPS model is intended to integrate both sides of this apparent paradox by showing how there can be stability in a person's cognitive-affective system and yet variability the person's behavior in different situations. Consistency in personality is therefore not at the level of individual behaviors, and inconsistencies in behavior are therefore not solely attributed to the situation. Rather, a person's inconsistent behavior reflects one's stable patterns of cognitive and affective processes interacting with variability in the environment. That is, in the CAPS model, behavioral variability across situations is not error but is predictable when considering personal and situational variables.

Central Premises

The CAPS model is influenced heavily by the personal constructs theory proposed by George Kelly, one of Walter Mischel's graduate school mentors. Personal constructs are the mental representations that people use to interpret events, which are based on a

person's history of experiences and observations. Each person has a unique set of personal constructs that guide the person's thoughts and perceptions. This idea makes up the first main component of CAPS: An individual's construal of the world is an important determinant of how the person will respond to different situations. The second key component is a view that the CAPS processes thoughts, feelings, and goals simultaneously on multiple, separate tracks that occasionally interact with each other. The result of this processing is overt behavior.

Key Variables

Cognitive-Affective Units (CAUs)

There are five prominent CAUs, which are cognitions and affects or feelings that are available to the person. Four of the variables were identified in the original version of the theory called *cognitive social learning theory* (Mischel, 1973): encodings, expectancies and beliefs, goals and values, and competencies and self-regulatory plans. Encodings are internal or external categories for the self, people, events, and situations. Expectancies and beliefs can be held about the world (particularly the social world), outcomes for behavior, and self-efficacy. Goals and values are related to achieving desirable outcomes and affective states or avoiding aversive outcomes and affective states; they can be related to short-term plans or long-term life projects. Competencies and self-regulatory plans are potential strategies and scripts for organizing behaviors to affect internal or external outcomes. Mischel subsequently revised the model to include a fifth variable, affects, which are feelings and emotions (including physiological states).

The dynamic nature of the CAPS was an important theoretical advance over existing models of personality, which typically assumed a static, causal relationship between latent personality traits and manifested behavior. The CAUs in CAPS are not isolated, unchanging components, but interact and influence each other over time. CAUs can become activated, deactivated, influenced or not influenced by other CAUs. The organization of the relationships between CAUs form the core of the personality structure. The accessibility of CAUs, and the interactions among CAUs describe and explain how people experience stimuli and generate affect, behavior, and cognition. That is, CAUs are important determinants of observed individual differences in personality.

If-Then Contingencies

An important premise of CAPS is that situation perception activates CAUs. The distinctive pattern of CAUs that are activated by the cognitive processing system in response to stimuli generates actions and behaviors. In CAPS, these patterns of stimulus processing leading to behavior are called *if...then* contingencies: *if* a certain pattern of CAUs are activated...*then* specific behaviors will result. Each individual's pattern of *if...then* contingencies is unique and together constitute the person's behavioral signature.

To illustrate by example, *if* in a situation where people offer help, *then* person 1 may activate CAUs resulting in happiness and expressions of gratitude, but person 2 may activate CAUs resulting in unhappiness and ungrateful behavior. Consider these people

in the contrasting situation in which help is not offered. Person 1 is ungrateful to be left alone in this situation, whereas person 2 experiences gratitude, possibly due to valuing independence. Examples like these can be extended to other situations and extrapolated over time to result in a scenario in which person 1 and person 2 experience the same overall degree of gratitude over time. Thus, even if people are similar in their overall or average levels on a personality trait, each person's specific *if...then* pattern is different and predictable, reflecting the different CAUs activated across different situational features.

Mischel contends that *if...then* contingencies could replace personality traits (e.g. The Big Five, for example) as the fundamental units of personality. CAPS stipulates that *if...then* contingencies have more power than traits because the contingencies explain how people change and adapt across different situations rather than simply specifying an average level of expected behavior. Further, these contingencies have the potential to explain traits themselves by the social learning and cognitive mechanisms incorporated in CAPS (Funder, 1997). For example, traits such as introversion-extraversion may be understood in terms of relevant *if...then* contingencies in situations that prime for manifestations across the introversion-extraversion continuum, such as social, leadership, and appetitive (i.e. situations that involve active reward-seeking behavior) situations. It has also been proposed that *if...then* contingencies may apply to ideas from other historically prominent traditions in personality. For example, the psychodynamic concept of transference, the notion that people unconsciously transfer their feelings about one person to a second person who is reminiscent of the first, fits this paradigm: *If* a man meets a woman who reminds him of his mother, *then* he might think and act similarly to how he felt and behaved with his mother.

Applying CAPS to Important Psychological Phenomena

The dynamic nature of all of the components in the CAPS model working together is best illustrated by noting how personal constructs influence the ways in which different features of a situation activate CAUs in the encoding process. The pattern of activations across other CAUs over time and across multiple tracks ultimately produce aspects of experience such as plans, strategies, and observable behaviors. This general model can be applied to important psychological phenomena.

Rejection Sensitivity

Consider rejection sensitivity, a cognitive individual difference variable characterized by level of vigilance to cues signaling social rejection (the prototypical example is in the context of romantic relationships). The behaviors of people with high levels of rejection sensitivity are inconsistent: In one situation, a person in a romantic relationship may act kindly toward a partner whereas in another the person could be irritable and harsh. This pattern cannot be understood adequately within the context of trait theories that assume consistency in behavior. The pattern could also be confusing to the person's partner without invoking a CAPS-based framework (Ayduk, & Gyurak, 2008). Specifically, early attachment relationship experiences influence acceptance-rejection personal constructs as they

apply to later interpersonal relationships. Fears and expectancies of rejection are activated only *if* certain situational cues are present (thus explaining variability in different situations), which *then* lead to the rejection-sensitive behavioral pattern of overreaction.

Delay of Gratification

A classic application of the CAPS model is to the concept of delay of gratification, as shown by an experiment in which children were presented with a choice between two options that varied in reward quality: a pretzel or a marshmallow (cf. Mischel, 2014). Children were given the option of taking the less desired reward (pretzel) right away or taking the preferred reward (marshmallow) after a period of waiting. The goal of this study was to examine the strategies a child would use to endure a period of waiting. It was determined that how a child conceptualized the reward in terms of CAPS processes (i.e. construals and cognitive-affective expectancies), predicted delay of gratification. For example, it was easier for a child to avoid eating a pretzel if the pretzel was thought about as a stick, rather than thinking about the crunchy, salty taste. This experiment demonstrated the causal power of CAPS variables.

Psychological Disorders

Finally, CAPS is just beginning to be applied in the conceptualization and treatment of psychological disorders, particularly anxiety disorders (Borkovec, Ray, & Stöber, 1998; Shoda & Smith, 2004). Consistent with CAPS, *if* different environmental stimuli (or situational features in the CAPS parlance are present, *then* affect, behavior, and cognition related to anxiety is triggered). Future research could elucidate how these stimuli activate cognitive pathways that result in anxiety, as such knowledge may lead to ideas about how to reduce their triggering effects. Additionally, making changes to one's environment could avoid triggers, resulting in altering patterns of CAUs and hence more adaptive responses. Along these lines, such research could proceed to test how different types of environmental changes affect CAPS variables, such as encoding, expectancies, goals and values, competencies, self-regulatory plans and affects (each variable could be examined separately or simultaneously in correlational and experimental designs). Another area of possible research is looking at whether different *if...then* patterns characterize different individuals' anxious responses. According to CAPS, one type of response can have many underlying *if...then* patterns, so such tests may be instrumental to further validating CAPS as it applies to important psychological outcomes.

See Also

Clinical Applications of Cognitive-Behavioral Theory of Personality
Delay of Gratification
George Kelley
Julian B. Rotter
Rejection Sensitivity
Walter Mischel

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Cattell Trait Theory Lexical Analysis

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History of the Lexical Approach to Personality

The lexical hypothesis was founded in sociolinguistic theory, in both England and Germany, in the early twentieth century (Fehringer, n.d.; Raad, 1994). According to this hypothesis, there are two assumptions about the cultural use of language: First, those personality characteristics that are important to a group of people will eventually become a part of that group's verbal utterances; and second, those personality characteristics deemed to be more important are more likely to be encoded linguistically as a single concept (Saucier & Goldberg, 1996). Early work in this field by Francis Galton and G. E. Partridge used Q-sort methods to examine a limited number of human descriptors thus narrowing the number of potential personality traits to a few hundred.

In 1936 Gordon Allport and Henry Odbert published their own factor analytic study of some 400,000 words used to describe personality or human behavior that were drawn from Webster's New International Dictionary. From this list, they identified 17,953 unique terms that could be applied to human personality traits. Their resulting study, which grouped these terms into four functional categories (Allport & Odbert, 1936; Winter & Barenbaum, 1999) became the foundation for Cattell's and others lexical researchers' work to follow. The first studies of personality dimensions were based on an analysis of 35 bipolar scales, passed on peer ratings of 373 male university students (Wiggins, 1996). Later studies included a sample of exclusively women and replicated roughly the same 11 dimensions found in the male sample.

The lexical approach marked a field-wide shift from theoretical to empirical study of personality. The overarching goal was to both describe and measure personality where a distinction between normal and abnormal is irrelevant (Cattell, 1946). This method generally starts with a large, broad pool of phenotypical characteristics and statistically groups ratings of trait adjectives into basic categories or units. According to Johnson (2017), Cattell's methods involved consolidating Allport and Odbert's initial list of 4,504 personality trait terms and reduced it to 160 clusters of terms that he and a fellow rater (a student of

literature) deemed to be either synonymous or opposites. From these clusters he selected 13 terms that embodied each grouping and added clusters representing intelligence, special abilities, and interests. Study participants then rated how characteristic or uncharacteristic each of the identified clusters was in describing a known acquaintance. Pearson correlations coefficients were evaluated to determine how strongly any two ratings were related (Cattell, 1943, 1945).

According to Johnson (2017), each of the correlations was calculated by hand and then printed on a 14-square foot table that was so large it had to be spread out on a gymnasium floor to view. Correlations larger than .83 were considered significant and thus, identical. Using this method, the initial 171 categories were reduced to 58 clusters. Further examination resulted in smaller and smaller numbers of categories until 35 groupings were achieved. These were the data Cattell utilized in his later factor analyses

The overarching goal of trait analysis is to identify the major dimensions of personality. Factor analysis is the statistical method used to achieve this objective. In factor analysis, groups of items that seem related, but do not co-vary with other items are identified, enabling the researcher to determine which personality variables share the same properties. It is useful in reducing a large array of traits into smaller sets of underlying factors. The factor loading is an index of the degree of variation in an item is accounted for by that dimension.

Cattell's research started by identifying words describing human behaviors and broke these down into multiple categorical types or unities (dynamic, environmental, logical/semantic/evaluative, constitutional, and developmental unities) and three general modalities (dynamic – changing, temperament – constant, and ability – learned) (Cattell, 1946).

Dynamic unities can be further deconstructed into two categories: dispositional (goal directed) and metanergs (the product of habits, sentiments, attitudes, and interests). Metanergs share a cultural understanding that makes them universally understood (i.e. "patriotic," "paternal," or "artistic"). Environmental unities describe the formation of a single pattern of behavior induced by environmental presses (or rewards and punishers), such as being a "good bicyclist." Logical/semantic/evaluative unities are purely logical/stylistic categorizations of behavior and have no relation to actual structure or function of the individual or the environment (i.e. someone termed "mechanical" or "charming"). Constitutional unities include behaviors that are unique to an organism and are not changing or related to environmental stimuli (i.e. "sensitive," "intelligent," and "excitable"). Developmental describes the simultaneous appearance of a group of characteristics or features that comprise a unity (i.e. "adolescent," "senile," "primitive," or any behavioral syndrome such as "depressive"). Finally, Other unities are anything not accounted for by another unit.

Cattell's Factor Analysis

Cattell's early access to sophisticated mathematical methods in his research position at the University of Illinois Champaign-Urbana was instrumental in his role as a multivariate research psychologist and statistician. Founder of the Society of Multivariate Experimental Psychology, he consulted internationally on research into human behavior using both multivariate statistics and factor analysis, enabling researchers to evaluate the whole person, rather than measuring single traits in isolation. Rejecting subjective theory

for more empirically sound statistical methods, he explored the basic dimensions of personality, motivation, and cognitive abilities in humans. One of the results of Cattell's application of factor analysis was his discovery of the theorized 16 separate primary trait factors within the normal personality sphere.

The 16 factors were later organized as described by Cattell (1946). The hierarchy of verbal constructs are arranged from widest reference to narrowest reference, with ordering dependent upon the relative strength of the general, group, or specific loadings of each factor. Overall, General Traits supersede Trait Configuration and Traits/symptoms supersede Elements. Cattell's initial analyses further resulted in two types of mathematical representations of traits: clusters (easily observable surface traits) and factors (underlying source traits). He observed that there are generally more inter-related clusters identified than true underlying factors. Significantly, clusters tend to be merely statements of statistically observed connections while factors are hypothesized interpretations of broader relationships between traits that are in part a function of theoretical orientation.

Cross-Cultural Validation

Eysenck and Eysenck (2013), purport that the vast majority of indices for trait factors (across both males and females) suggest that the personality dimensions in different countries are essentially similar and may even endorse the concept of identity. Consistent with the lexical hypothesis, valid measure of personality would be expected to vary cross-culturally, while high correlations would be anticipated where levels of cultural similarity overlap (Meisenberg, 2015). In a meta-analysis consisting of five cross-cultural studies of lexical factor theory, average correlations for each personality dimension across international samples indicated acceptable correspondence internationally. The factors Neuroticism, Extraversion, and Conscientiousness produce the highest correlations while Agreeableness and Openness are the least valid. Likewise, examination of TESOL results have confirmed the factors introversion/extraversion and risktaking (Shalabi & Nodoushan, 2009).

Development of Personality Assessment Using the Lexical Approach

The 16PF marks the first attempt to use statistical methods to map the primaries and secondaries of personality dimensions for the purpose of describing and diagnosing personality types (Cattell, 1989). The 16 dimensions associated with the 16PF include:

1) Affectothymia-Sizothymia: The warm-cool orientation
2) Discerning Relationships: Intelligence
3) Adaptation to the Environment
4) Control and Deference in Human Relations
5) Exuberant and Somber orientations
6) Content and Action of Moral Values

7) Boldness and Timidity in Human Temperament
8) Feeling vs. Thinking – Contrasting modes of evaluating experience
9) Alienation vs. Identification in Social Orientations
10) Intuiting and Sensing as Contrasting Perceptual Modes
11) Self-Presentations in Social Situations
12) Guilt Proneness and Untroubled Adequacy
13) Orientation Toward Change
14) Self-Sufficiency vs. Group Dependency
15) Investment in Maintaining a Socially Approved Self-Image
16) Tense and Relaxed Temperaments

Critiques of Cattel's Lexical Model

One of the primary issues brought up about the lexical approach addresses limitations of human language. First, not all human descriptors are personality relevant. Second, there are many terms that are used metaphorically that are not phenotypic descriptors of human behavior and that are systematically eliminated from analysis. Third, person descriptors can include nouns, verbs, and adjectives, but in languages with few adjectives, it is unclear what words should be analyzed (Saucier & Goldberg, 1996). Fourth, language accounts for a minority of human communication and does not sufficiently describe human experiences (Mehrabian, 1971). Lastly, there is a natural pro-social bias in language, founded in its function as facilitator of group socialization. Hence, there are fewer words dedicated to negative affect and more descriptors dedicated to sociability (Mehrabian, 1971).

Radd (1994) observed significant differences in word-class frequency of personality descriptors for five languages including American English, Hungarian, Dutch, German, and Italian, imposing serious restrictions upon comparisons between sets of personality descriptive expressions. Such cross-cultural examination has led to some question about the labeling of certain factors with the concern that there is poor consensus on the existence of some factors and possible exclusion of viable dimensions (such as humility) (Fehringer, n.d.).

Furthermore, Cattell's Sixteen Personality Factor Model has been greatly criticized because of the inability of other researchers to replicate his findings. There were undoubtedly mathematical errors discovered in Cattell's early factor analysis resulting in skewed data, thus the inability to replicate (Digman, 1996; Fehringer, n.d.). However, the hierarchical structure of the 16PF has been confirmed at least partially by Rossier, Meyer de Stadelhofen, and Berthoud (2004).

Another major critique of Cattell's approach included the troubling use of too many factors with Eigen values well under .70. Upon re-examination, Cattell's third study (the female sample) reportedly provided a sound five-factor solution resembling the emergence of the Big Five (Digman, 1996; Johnson, 2017). This solution was later confirmed by multiple researchers and the factors were labeled: Extraversion or Surgency, Agreeableness, Conscientiousness, Emotional Stability, and Intellect or Openness to experience (John, Angleitner, & Ostendorf, 1988).

See Also

16 PF, Correlates of
Big Five
Factor Analysis in Personality Research

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Interpersonal Circumplex

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Conceptualization and Structure

The interpersonal circumplex is a two-dimensional model in which various interpersonal qualities can be mapped in a circular space. This structure implies that interpersonal qualities vary along a circular continuum and are oriented by the two primary dimensions of agency (also called dominance, assertiveness, and control) and communion (also called warmth, love, and affiliation). These terms were derived from the work of David Bakan (1966), who suggested that they represented the two basic categories of human existence. Agency refers to the existence of a person as an individual and manifests itself as self-assertion, urge to master, control, and seek status, whereas communion represents the participation of individuals in a larger group of people and is manifested as a desire to belong with others, warmth, cooperation, relatedness, and friendliness.

Although the interpersonal circumplex has gone through a number of slight revisions by various researchers, there tends to be agreement concerning its basic structure. Figure 1 displays the circular ordering of the eight-octant interpersonal qualities presented by Wiggins and colleagues (Wiggins, Trapnell, & Phillips, 1988). By tradition, the octants around the circumplex are given alphabetic names in a counterclockwise direction (e.g. PA, BC, DE, etc.) and can be defined by their angular location ranging from 0° to 360°. In this manner, agency and communion can serve as a kind of Cartesian coordinate system to geometrically locate various interpersonal constructs around the circumplex.

Because of the structure of the interpersonal circumplex, it is possible to use the dimensional axes of agency and communion to classify an individual's interpersonal style by both its angular location and vector length. An individual's angular location serves to categorize a person into one of the eight octants of the circumplex. The vector length corresponds to how far a person falls from the center of the circle, representing the extremity of his or her interpersonal style. This extremity can range from moderate and flexible (i.e. close to the
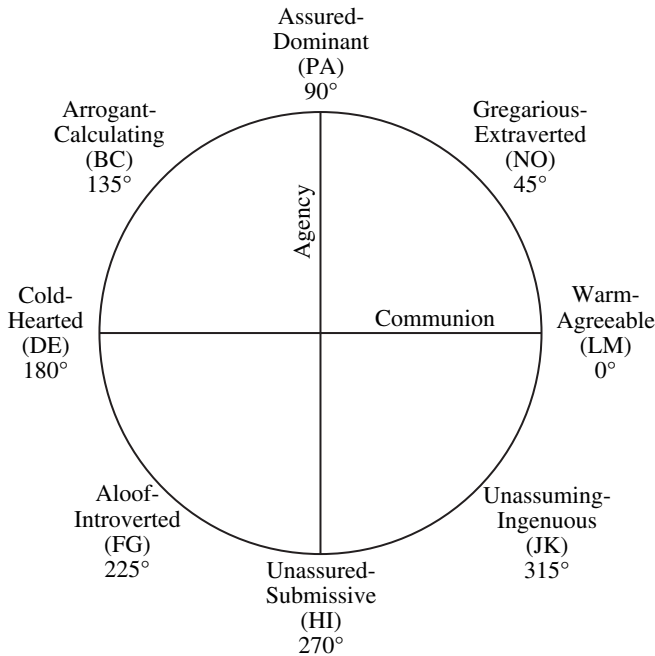
Figure 1 The interpersonal circumplex.

center of the circle) to extreme and inflexible (i.e. far from the center). The formulas below can be applied in order to compute an individual's angular location and vector length.

$$\text{Angular Location} = \text{arctangent}\left(\text{Zagency} / \text{Zcommunion}\right)$$

$$\text{Vector Length} = \left[\left(\left(\text{Zagency}\right)^2 + \left(\text{Zcommunion}\right)^2\right)\right]^{1/2}$$

Where:
Zagency is the standardized agency score of a given person
Zcommunion is the standardized communion score of a given person

For example, using the above formulas, a fictitious person who is agentic (e.g. Zdominance = 1.0) and communal (e.g. Zcommunion = 1.0) would have a vector length of 1.0 and an angular location of 45°, classifying him or her in the NO octant or as "gregarious-extraverted" (i.e. between 22.5° and 67.5°).

The structure of the interpersonal circumplex presented in the figure implies that interpersonal qualities or traits arranged around the circumplex represent different "blends" of the two dimensions of agency and communion. For example, gregarious-extraverted is depicted as a blend of high agency and high communion, whereas arrogant-calculating is a blend of high agency and low communion. This approach realizes that while some traits may be orthogonal to each other when assessed across individuals (e.g. the orthogonal dimensions of agency and communion, the personality traits within the Five Factor Model, etc.),

they are not isolated entities within individuals. This understanding has been an underlying (although sometimes forgotten) theme in the study of personality since Gordon Allport (1937) defined personality as "the dynamic organization *within* the individual of those psychophysical systems that determine his unique adjustments to his environment" (p. 48; emphasis added). A person who is agentic and communal will likely exhibit different behaviors (e.g. gregariousness) than an individual who is agentic and not communal (e.g. arrogant). This view is similar to Lew Goldberg's (1993) horizontal approach to organizing personality constructs, which stresses the importance of locating personality characteristics in a multidimensional space.

By considering these dimensions together, the interpersonal circumplex also provides a useful elaboration of two factors of the Five Factor Model. Specifically, the two primary dimensions of the interpersonal circumplex represent approximately 45° rotations of the Five Factor dimensions of extraversion and agreeableness. The Five Factor Model and interpersonal circumplex are therefore complementary models of personality; the Five Factor Model provides a framework with which to interpret the circumplex and the interpersonal circumplex provides an elaboration of two factors from the Five Factor Model.

History and Assessment

Harry Stack Sullivan's (1954) interpersonal theory of personality stresses that personality is created and maintained through interpersonal interactions. According to Sullivan, in order to understand people, you must have knowledge of the interpersonal characteristics and techniques they express when interacting with others. In an attempt to operationalize and examine the basic concepts related to Sullivan's Interpersonal Theory, in the 1950s, researchers at the Kaiser Research Group in Oakland, California performed systematic observations of 5,000 individuals (many with psychiatric and medical problems) in social interactions. Based on these observations, the director of psychology research at the Kaiser Foundation, Timothy Leary, published the seminal book *Interpersonal Diagnosis of Personality*, which presented the notion that interpersonal variables are arranged in a circular structure called the "interpersonal circle." This circle consisted of 16 interpersonal variables ordered around the primary dimensions of "dominance-submission" (i.e. agency) and "love-hate" (i.e. communion). In order to assess an individual's location on this circle, members of this research team created the 128 self-report item Interpersonal Check List (ICL).

Around this same time, in 1954, Louis Guttman coined the term "circumplex" in order to describe "a system of variables which has a circular law of order" (p.325). Although Guttman did not discuss interpersonal variables in this paper (he focused mostly on mental ability tests), this work, and the developments that followed, provided the foundation for the psychometric properties of circumplex models. Specifically, the structure presented in the figure above implies three basic "rules" concerning the interpersonal qualities around the circumference of the circumplex. First, all interpersonal characteristics around the parameter of the circumplex can be reduced down to different combinations of the two basic dimensions of agency and communion. Second, each interpersonal characteristic is equally spaced from the center of the circle (i.e. each has an equal projection in the two-dimensional space). Finally, the interpersonal characteristics are spaced evenly around the

circle. A circumplex structure also produces predictable intercorrelations among the interpersonal qualities that compose the circle. For example, the correlations among adjacent interpersonal qualities (such as "warm-agreeable" and "gregarious-extraverted") will be larger than the correlations among characteristics more distal from each other (such as "warm-agreeable" and "arrogant-calculating"). Also, the correlations among qualities at right angles are unrelated to each other (such as "warm-agreeable" and "assured-dominant"), and qualities at opposite pose of the diameter are negatively related (such as "warm-agreeable" and "cold-hearted").

The work by Guttman and the advancement of statistical techniques have allowed modern scholars to create interpersonal assessments that better adhere to a circumplex structure than the ICL. By factor-analyzing responses from controls and psychiatric patients, Lorr and McNair developed and validated the circumplex structure of the Interpersonal Behavior Inventory (IBI). The next major step in operationalizing the interpersonal circumplex occurred in 1979 when Jerry Wiggins introduced the 128-item Interpersonal Adjective Scale (IAS), which was followed by a shorter 68-item version called the Revised Interpersonal Adjective Scale (IAS-R). The IAS-R is now the most widely used assessment of the interpersonal circumplex as a measurement of normal variations in interpersonal traits. Recent research shows strong support for the circumplex structure of the IAS-R octant scales and the validity of these scales as assessments of interpersonal octants.

Additional Applications of the Interpersonal Circumplex

In addition to assessing interpersonal traits, the interpersonal circumplex has also been applied to understand various variables such as motivation, values, and behaviors (researchers have recently started using a joystick-tracking device to assess agentic and communal behaviors in real time). In addition to examining these interpersonal variables, scholars have also used the interpersonal circumplex to examine interpersonal problems. Interpersonal problems are traits that may lead to personal distress and prevent a person from functioning appropriately in social relationships. The Inventory of Interpersonal Problems (IIP; Horowitz, Rosenberg, Baer, Ureño, & Villaseñor, 1988) contains 64 self-report items and is composed of eight subscales that are located around a circular structure. Beginning at the top of the circumplex and moving counterclockwise the subscales are: domineering (i.e. too aggressive toward others), vindictive (i.e. wants to get revenge against others), cold (i.e. difficulty feeling close with others), socially avoidant (i.e. hard to socialize with others), nonassertive (i.e. finds it difficult to confront others), exploitable (i.e. taken advantage of by other people), overly nurturing (i.e. tries to please others too much), and intrusive (i.e. has a hard time keeping things private). Unlike other assessments of the interpersonal circumplex, the IIP is best conceptualized as a bifactor model. This model suggests that the covariance among the IIP subscales can be accounted for by a single general factor (overall interpersonal problems) and two specific factors represented by the two primary circumplex axes (i.e. agency and communion). In other words, the IIP circumplex can be used to assess three underling dimensions: overall interpersonal problems, agentic interpersonal problems, and communal interpersonal problems.

The conception of the two-dimensional interpersonal circumplex as a measurement of interpersonal characteristics has been further supported by research examining interpersonal complementarity. The principle of complementarity states that, during social interactions, the interpersonal behaviors of one person tends to elicit or constrain the interpersonal style of the other, and vice versa. Perhaps the most popular definition of complementarity that utilized the interpersonal circumplex is Robert Carson's (1969), which states that complementarity occurs when individuals act similarity in regard to communion (i.e. warm behaviors encourage warm responses, and cold behaviors encourage cold responses) and in an opposite manner in regards to agency (i.e. dominance encourages submission, and submission encourages dominance). For example, if person A acts in an agentic and communal manner (i.e. in a gregarious-extraverted manner), the likely response of person B would be to complement this style of behavior by acting in a non-agentic and non-communal (i.e. in an aloof-introverted manner). Past research using the interpersonal circumplex has tended to support this model, finding that people alter their behaviors in a complementarity manner when interacting with confederates coached to act in a particular style, with naive opposite sex-strangers, romantic couples, friends, and therapists.

See Also

FFM & Facets

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Psychodynamic Perspective of Defense Mechanisms

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The concept of defense mechanism refers to a mental process that occurs outside of awareness. This concept is one of the most important parts of classical psychoanalytic theory. In contemporary theory, the concept has been expanded, and its function has been elaborated. As currently understood, the defense mechanism functions to keep the individual unaware of thoughts or feelings that would arouse anxiety or loss of self-esteem if consciously recognized. Defenses occur as part of normal development, but if used excessively or if age-inappropriate, they may signal the presence of psychopathology.

The idea of a defense mechanism was originally presented by Sigmund Freud (1894), who found that people have the capacity to keep painful thoughts or feelings from becoming conscious. Freud (1895/1966) also noted that defenses may explain symptoms of psychopathology. As his work progressed, Freud focused on the role of instinctual drives for understanding human behavior. At this point, defenses were thought of as a counterforce that prevented the discharge of drives. Several different defense mechanisms were proposed. These were considered to be processes with the function of protecting the person from experiencing excessive anxiety.

The work of Anna Freud (1936) elaborated on the motives for defense use. On the one hand, the pressure for discharge of instinctual drives produces an anxiety signal, which results in the use of a defense mechanism to "ward off" the feeling of instinctual anxiety. Anxiety can also emanate from the violation of external prohibitions (objective anxiety), or it may occur when the dictates of internalized prohibition – i.e. conscience – are violated (super-ego anxiety). In these latter cases, the motive for defense has a different origin, namely, the warding off of feelings of guilt. Fenichel (1945) added to this the idea that defenses protect against threats to security and self-esteem.

A number of different defense mechanisms have been identified. The most frequently occurring include repression, denial, projection, displacement, reaction formation, undoing, rationalization, intellectualization, and sublimation. Research has shown that these defenses develop at different ages (Cramer, 1987). Repression, which may be understood

to underlie all of the other defenses, must thus develop first, at least in some primitive form. Denial is the next defense to develop, and is characteristic of early childhood. It functions by attaching a negative marker – no, not, never – to a thought or feeling, as when the young child says, "I don't care that he got a brand new bicycle." During later childhood and early adolescence, projection becomes a prominent defense. Here, the individual projects, or attributes, his or her own negative thought or feeling onto another person, as when the boy who dislikes his teacher says, "She doesn't like me" – assuming, or course, that this is not actually true. In late adolescence, the defense of identification become prominent. The operation of this defense is different from denial or projection. Rather that ridding the self of unwanted thoughts or feelings, identification functions by taking on, as one's own, the characteristics of another individual. This person is generally someone who is admired and/or seen as stronger. The process of identification in adolescence contributes to the formation of a personal identity. Although not yet demonstrated through research, it seems likely that the other defenses also show a developmental pattern, emerging later in development.

The development of defenses may be considered from two points of view. First, as suggested above, development implies that the use of defenses changes over time, and that there is a chronological ordering of the emergence of different defenses. From this vantage point, defenses may be considered age-, or stage-appropriate. Defenses that develop later in time may be considered "mature." From a second point of view, the defense itself may be considered to develop. In this conception, a defense has its origin in early reflex behaviors which are gradually transformed into voluntary motor behavior, and then internalized into mental operations, much in the way that Piaget (1952) described the development of cognitive operations. In this conception, the relative strength of a defense changes with age, as described earlier.

In order for a defense to be effective, the person using the defense should not be aware of its function. Research evidence has shown that children's understanding of defenses changes with age (Cramer & Brilliant, 2001). Young children (ages 5–6) do not understand the function of denial; they do not "see through" the defense. However, a few years later, as cognitive capacities have increased, the child can figure out that denial is used to avoid emotional upset. At this point, projection replaces denial as the predominant defense. It remains effective as long as its function is not understood.

Measures

There are problems associated with the attempt to measure defense mechanisms. Since defenses are unconscious processes, of which the person is not directly aware, it is logically inconsistent to ask the person to report on these processes.

However, there are methods in use that ask the person to report on their own defense behavior. Some of these methods include questions that have no obvious relationship to a defense, but nevertheless have been shown to correlate with defense use. Advantages of his approach include the ease of test administration and objective scoring, but limitations include the problems association with self-report – self-enhancement, and the actual utilization of defenses when responding to questions about defense use.

Other measures of defenses take a more indirect approach, in which the defense is assessed without the conscious awareness of the person using the defense. In this method, the functioning of the defense may be recognized by an independent observer. For example, clinical interviews provide an open-ended sample of the person's thought processes, in which the use of defenses may be determined (e.g. Vaillant, 1992). Another approach involves the use of methods for which there is no clearly desirable response, such as the Thematic Apperception Test story-telling (Cramer, 2006). In both of these approaches, the use of defenses may be evaluated by a trained observer. The advantage of these methods is that thought processes are expressed freely, without imposed limits. Problems with these approaches include the possibility of subjectivity or rater bias.

Personality

Research has found that the use of defenses is related to personality characteristics. In early adulthood, projection has been found to be associated with low agreeableness, undependability, low conscientiousness, and high neuroticism, whereas the use of identification as a defense has been found to be related to self-confidence, cognitive commitment, and outgoingness. Further, defenses become increasingly important for predicting personality change with increasing age. For example, the use of mature defenses in early adulthood predicts a more positive personality, better psychosocial adjustment, and greater life satisfaction in later life, whereas the use of immature defenses predicts less favorable personality traits, such as neuroticism and disagreeableness.

The relation of defenses to personality also depends on IQ. Thus, for persons with a low IQ, the use of defenses may have a positive effect, being related to positive personality traits; it appears that defenses serve a compensatory purpose. However, use of the same defense by persons with a high IQ has been found to be negatively associated with healthy personality.

Psychopathology

As indicated earlier, the concept of the defense mechanism was linked in early theory to understanding psychopathology. Pathological symptoms were considered to be the manifestation of particular defense mechanisms. Current clinical work and research studies have found that different defenses are associated with different psychiatric diagnoses. For example, projection is associated with the diagnosis of paranoia, acting out is associated with the antisocial personality, and denial is associated with the narcissistic personality disorder (Vaillant, 1994).

Defenses are considered to be pathological when they are used in an overly rigid fashion, occur in too many different situations, distort reality perception, and interfere with adaptive functioning. Also, as indicated above, defenses may be considered to be pathological when they are age-inappropriate. Nevertheless, defenses also function to reduce anxiety and to protect self-esteem. As with other coping mechanisms, defenses may then serve a positive, non-pathological function.

Sex Differences

Psychodynamic theories of sex development have discussed female sexual identity as characterized by a proclivity to focus attention inward toward the interior world, whereas men's sexual identity involves an outward orientation, focusing on the external world. In this case, one would expect that females would be likely to make use of defenses that modify inner thoughts and feelings, such as denial, reaction formation, or turning against the self, even if this results in falsifying external perception. In contrast, it would be expected that males would rely on defenses that place conflict in the external world, such as projection, displacement, or turning against the object, even if this involves falsely attributing inner motivations to that external world.

Interestingly, this sex-based defense use is sometimes determined more by sex orientation than by biological sex. Thus males and females who have a masculine orientation both make strong use of turning against the object. Those who have a feminine orientation, regardless of whether they are biologically male or female, are more likely to use the feminine defenses of reversal and turning against the self. In this case, sex orientation rather than biological sex is the important factor determining defense use. On the other hand, the use of projection has been found to be associated with a masculine orientation in males, but not in females. Here, both biological sex and sex orientation are the determining factors (Cramer, 2006).

Research has also examined sex-based differences in the relation between defense use and personality functioning. The issue here is whether the use of the same defense by males and females has the same implication for their personality. Sex differences occurred most clearly for the use of projection. Men who relied on projection were described by expert observers as being distrustful of others, transferring blame to others, tending to being manipulative and hostile toward others, tending to direct anger inward, and being anxious and depressed. They also were negatively identified with their fathers. In contrast, women who used projection were described as being lively, positive, and extraverted, and did not show the mistrust, blame transfer, and depression found in the men. When criticized, they directed anger outward. They also were positively identified with their mothers. It appears that women who use projection are less likely to experience psychological difficulties. However, men and women who used the defense of denial were characterized in similar ways. They were described as inconsistent, unpredictable, unstable, and anxious. They were also depicted as egotistical, self-centered, and self-indulgent, and their cognitive functioning was portrayed as "fuzzy thinking" (Cramer, 2006).

See Also

Defense mechanisms
Emotion regulation and psychopathology
Personality development
Thematic Apperception Test
Unconscious processes, expression of personality process

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Delay of Gratification

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What Is It? Conceptualization

Delay of gratification has been studied for more than 50 years now. It is defined as a cognitive and motivational mechanism that leads to the choice of a later or more distant goal when a person is being faced with an immediate reward. Delay of gratification is thus an ability to control an impulse for the sake of a more valued, but postponed, reward. Impulse is associated with immediate pleasure, and is in conflict with delayed gratification. For example, instead of spending for fun some money earned within a particular month, a person can make savings and wait 40 years or longer to use it. Delay of gratification represents one of the regulatory processes; for instance, along with goal-setting abilities, that are responsible for successful self-regulation. Delay of gratification is theoretically different from ego control and conscientiousness concepts, because the theory of gratification delay explains why and how a person persists (or not) in waiting for a reward or achieving the long-term goal (Metcalfe & Mischel, 1999).

How Is It Studied? The Paradigm, Developments, and Major Findings

In classic studies, a child, was asked to choose between a larger reward (e.g. two cookies) that was delayed, and a smaller and an immediate treat (e.g. one cookie). The child was told about two options: (1) that the experimenter would leave for a while and that s/he could wait for the larger treat until the experimenter came back without being called or; (2) that s/he could ring a bell, to request the experimenter to come back, at any moment, in order to receive the smaller reward, but without getting the larger reward. The child was left alone in the room until s/he used the bell, or the experimenter returned. The child did not know how long s/he had to wait, to obtain the larger reward. For example, Mischel and Ebbesen (1970) assumed this experimental situation would build a conflict between the

temptation to stop waiting, to obtain the smaller reward as soon as possible, or continue waiting for the original, larger, more preferred choice. The resolution of the conflict was to call the experimenter as soon as the decision – to take the immediate reward – was made. If the child proceeded to delay, the experimenter returned unexpectedly within 15–25 minutes (Mischel & Ayduk, 2011).

Some of modifications of the classic paradigm were made. Mischel, Ebbesen, and Raskoff Zeiss (1972) tested how distractors (playing with a toy, versus thinking about having fun) influenced the delay when the reward was always visually present. Distractions increased the delay. They also tested how thinking about food rewards and thinking about sad events (anything that a child found to be sad), influenced the delay. They proved that these two distractors decreased waiting time, in comparison to thinking about having fun. In the next modification, Mischel and Baker (1975) showed how the delay could be manipulated depending on the cognitive transformations of rewards. In the first condition, a child was told to focus on how tasty, sweet, or pleasant the marshmallow was, whereas in the second example, s/he was asked to concentrate on physical aspects of the treat. These studies indicated that specific cognitive intervention might greatly affect the dynamics of gratification delay.

Moreover, experiments established cognitive processes that determine successful self-regulation in childhood. Children aged four, who delayed gratification longer than other children at the same age, were described by their parents 10 years later as adolescents who were more academically and socially skilled than their fellows. Additionally, the first group of children (high-delayers) also were able to manage frustration or control their behavior better than the low-delayers. Delaying of gratification was positively related to the Scholastic Aptitude Test when these two groups applied to college. Thus, a relatively unsophisticated situation, proved to be diagnostic for a person's life-achievements. The patterns persisted even in adulthood. So, the paradigm is empirically informative and theoretically intriguing (cf. Metcalfe & Mischel, 1999).

In seeking the underlying mechanism, scientists found that the high-delayers at age four were deliberatively avoiding focusing attention on rewards or were distracting themselves. The self-regulation skills developed throughout childhood, determined the difference between high- and low-delayers in adolescence (Mischel, Shoda, & Rodriguez, 1989).

Delay of gratification also is studied in adult samples. Methods used are: (1) questionnaires (hypothetical choice), (2) discounting tasks (real-life choices), (3) sustained delay tasks in which participants, at the beginning, chose the preferred delayed reward that is obviously worth waiting for. Afterwards, the delay was measured as the time a participant could resist the smaller, immediate, reward in order to obtain the larger, preferred, reward. The last method (4) is a repeated trials delay task that demands a repeated choice between a smaller, but immediate, reward, or a larger, but delayed, one; after the trial, each participant received the actual reward, and could change a previous decision. These four types of delayed gratification tasks were positively and moderately correlated with each other, and positively but slightly correlated with other measures of self-regulation skills (e.g. executive function: goal-oriented processes, working memory, attention, and switching) and informant-report measures (e.g. self-control of impulses; Duckworth & Kern, 2011). Thus, delay of gratification is considered as a different psychological mechanism from executive function. It is therefore suggested that "the optimal measurement

strategy is to include both task and questionnaire measures [...] the composite measure of self-control predicted academic performance better than did any single measure" (Duckworth & Kern, 2011, p. 266).

How Is It Explained? Theoretical Background

Metcalfe and Mischel (1999) developed a conceptual model that explained the mechanism of gratification delay. A dual-process model differentiated between "cool" and "hot" systems. The "cool" system is characterized as: cognitive, complex, reflective, slow, develops late in life, is attenuated by stress, and responsible for control over the self. The "hot" system is considered as emotional, approach- and avoidance-oriented, simple, impulsive, fast, develops early in life, is facilitated by stress, depends on stimulus. Action is a result of the interaction between these two systems that cooperate through (1) "hot spots" that generate reflective, thoughtful, and planned behavior, and (2) "cool nodes" that produce automatic reactions in response towards stimuli. The interactions dynamically determine the self-regulation processes, that result in the ability to persist (or not) in pursuing a long-term goal. The mechanism of these interactions is rooted in parallel processing, working in a network; and the overall effect is experienced by a person or could be observed in a behavior. Specifically, "hot spots" and "cool nodes" are linked to an external reference system. "Hot spots" can be activated also by processes implemented in "cool nodes"; alternatively, "cool nodes" can be turned-on by "hot spots." Willpower is a result of the activity of "cool nodes." The nodes cool down the "hot spots" and make rational, planned, and strategic behavior possible. Psychological distance helps to change personal perspective, and automatically induces effective strategies of emotion regulation (cf. Szczygieł, & Mikolajczak, 2017).

In the first periods of life, the "hot" system is more active, and overrules the "cool" system. The consequence of this imbalance is a higher sensitivity to rewards than punishments in 5-to-6-year-old children (Prencipe, Kesek, Cohen, Lamm, Lewis, & Zelazo, 2011), and that could explain increasing obesity in children. Metcalfe and Mischel (1999) claimed that their framework explained why people failed in regulating their emotions. These failures could be described as deficits of will. For instance, when an emotion is strong, and a person is focused on stimuli that provoke this emotion, it is highly possible the person would act impulsively. Nowadays, the important question is how the will could be trained, and how metacognitive knowledge develops.

What Is the Biological Mechanism? Neurocognitive Perspective

One of the most important recent findings was published by Casey et al. (2011) who studied participants examined by Mischel and colleagues 40 years before. They found that high-delayers revealed much better inhibitory control than the low-delayers, especially in tasks activating the "hot" system. Second, the studies sought to find differences in brain activity in regions associated with cognitive control, and sensitivity to reward, between high- and

low-delayers. Whereas the "hot" system includes deep brain structures (e.g. ventral striatum), the "cool" system involves the prefrontal cortex. Moreover, the activity of these two brain systems in response to "stop signals" suggesting control or delay was different in these two groups, who in early childhood were characterized as high- and low- delayers. Brain regions associated with sensitivity to rewards were more active in low-delayers, but regions involved in cognitive control and rational decision-making were more active in high-delayers. As delay of gratification seems to be an important part of human life, neuro-imaging studies prove that the ability to delay has biological foundations (Bar, 2010).

How It Can be Developed? Future Directions

As Duckworth, Tsukayama, and Kirby (2013) showed, delay of gratification predicts life outcomes because it diagnoses the ability to self-regulate, rather than other cognitive skills (i.e. intelligence) or reward-driven actions. The delay tasks are better measures of the ability to regulate behavior when confronted with frustrating exercises, because they are less biased than questionnaires. Future studies on self-regulation should take that into account.

A problem for future studies is "What kind of treat?" can be used to examine the delay of gratification in adults. Recent studies (van Koningsbruggen, Hartmann, Eden, & Veling, 2017) suggest that social media can be a good area in which to study the mechanism of delay, because of its popularity and addictive nature (e.g. Błachnio, Przepiorka, & Pantic, 2016).

See Also

Behavioral Assessment Techniques of Personality in Children
Behavioral Inhibition/Activation, Personalilty Correlates of
Emotional Intelligence
Grit
Persistence, Personality Correlates
Self-control
Self-monitoring, Theory of
Self-regulation
Walter Mischel

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Extraversion – Introversion

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The Extraversion-Introversion Dimension: Overview

In considering the extraversion-introversion personality dimension, think of two contrasting people in your graduating class. One of those people enjoys attending all of the class parties, is known for having lots of friends, and is open to seeking out new experiences that offer a thrilling lifestyle. This person is energetic, a leader in most domains, and is very happy with their life. In contrast, is another person who tends to stay away from the class parties and who is instead happiest when quietly staying home with a good book. This second person may have a few close friends, but tends to be more comfortable within their organized and routine lifestyle.

When reflecting on these two contrasting individuals, we can identify them as falling on opposite ends of the Extraversion-Introversion personality dimension. Extraversion is composed of both interpersonal and temperamental components. The interpersonal characteristics of extraversion reflect the most common representation of typical extraverted behaviors, including sociability and assertiveness. This social component is a key feature of extraversion, incorporating extraverts' impact on their social environments as a defining characteristic of the trait. The temperamental characteristics of extraversion reflect increased activity level and positive affect. Thus, when considering the extraversion-introversion dimension, an extravert is typically someone who is more outgoing, talkative, social, and energized, similar to the first-person in the example above. In contrast, an introvert is typically someone who is more reserved, quiet, and passive, similar to the second person in the example above.

Development of the Extraversion-Introversion Dimensions

Carl Jung first ignited the idea of extraversion with his conceptualization of extraversion and introversion as two separate types of people. Jung identified extraverts as having a

focus on the outer world, directing an *outward* flow of personal energy to the social environment. In contrast, he identified introverts as having a focus on the inner mental world, directing an *inward* flow of personal energy focused on internal factors. Although the extraversion-introversion dimension has greatly evolved since Jung's work, he is given credit for coining the terms "extraversion" and "introversion." Building upon this initial work, two of the key researchers to theoretically advance the theory of extraversion-introversion as a personality dimension were Hans Eysenck and Jeffrey Gray.

Hans Eysenck (Eysenck & Eysenck, 1985) conceptualized a hierarchical personality model based on traits that he believed to be highly heritable, and psychophysiologically rooted. To characterize extraversion, Eysenck theorized the concepts of excitation and inhibition in relation to personality and behavior. Within his model of personality, he focused on the three dimensions of extraversion-introversion (E), neuroticism-emotional stability (N), and psychoticism (P). Beginning with these three broad traits at the top of the hierarchy, Eysenck posited that each broader trait is characterized by a narrower number of characteristics. For Extraversion, traits such as *sociable*, *active*, *assertive*, and *sensation-seeking* represent covarying factors loading onto the broader E factor. Eysenck then broke this down further into a third level, which he deemed *habitual acts*. For example, someone who is extraverted is more likely to habitually attend many parties, and to seek out new adventures, such as sky-diving or traveling. These habitual behaviors would together load onto the narrower, second-level, characteristics of *sociability* and *sensation seeking*.

Raymond Cattell further expanded upon Eysenck's three factor approach when he developed a list of 16 personality factors derived from a modern factor analysis of lexical approaches. Of these 16 personality factors, five cluster together to form the higher order factor of extraversion, including interpersonal warmth, impulsivity, and boldness. However, with many arguing that a smaller number of factors could hierarchically incorporate the key factors of personality, researchers continued to narrow in on a smaller number of encompassing personality traits.

With this in mind, one of the most common personality taxonomies prominently used to this day is the Five Factor Model of Personality, also referred to as the "Big Five." Derived from factor analysis of the most commonly used words in the English language, five broad traits were established: Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness. Within this model, extraversion is assumed to adopt a hierarchical structure with six lower order facets: warmth, gregariousness, assertiveness, activity, excitement-seeking, and positive affect.

Biological Correlates

The robust presentation of the extraversion-introversion dimension links back to its genetic basis and physiological processes underlying its considerable presentation in cultures all around the world. Undoubtedly, the nature vs. nurture debate is ever prominent in the realm of personality and individual differences. However, by examining heritability estimates of over 25,000 pairs of twins, extraversion yielded a heritability rate of 60%. This high rate of heritability suggests that the genetic component of extraversion is more important than the environmental rearing of extraverted individuals. In other words, it is

highly plausible that we are *genetically wired* to be extraverted, rather than learning extraverted behaviors throughout the course of our development. When considering gender differences in extraversion, women tend to score slightly higher on gregariousness compared to men, and men tend to score slightly higher on assertiveness compared to women; however, these differences are only modest, and overall there are no significant differences for gender along the extraversion-introversion dimension.

To integrate this knowledge of the pervasiveness and heritability of extraversion, Eysenck was a leading force in the research surrounding the biological basis of the extraversion-introversion dimension. With a focus on cortical arousal, Eysenck integrated his model of personality with the theories of physiological excitation and inhibition. More specifically, he proposed that extraverts and introverts possess differing thresholds of excitation and inhibition in their ascending reticular activation system (ARAS), with introverts possessing a lower threshold for arousal compared to extraverts. The ARAS is a feedback look that connects the cortex to the reticular activating system and mediates the body's state of arousal. Extraverts are characterized by lower resting levels of ARAS arousal, thus motivating them to seek out further excitement and stimulating environments to compensate for this understimulation. For example, extraverts engage in sociable, active behaviors as a way of increasing their level of arousal. In contrast, introverts have a higher resting level of ARAS arousal, thus motivating them to avoid situations that offer overstimulation. In other words, introverts engage in quiet, reserved behaviors as a way of maintaining their already heightened level of arousal.

Offering an alternative to Eysenck's research on the ARAS, Jeffrey Gray examined extraverts' sensitivity toward seeking out rewarding stimuli from their environments. Gray (1970) vehemently disagreed with Eysenck's view of arousal as conditioning behavior. As such, he focused more specifically upon physiological processes, including dopaminergic functioning, and proposed the Reinforcement Sensitivity Theory. Within this theory are two primary systems: the behavioral approach system (BAS), and the behavioral inhibition system (BIS). The BAS is linked with approach motivation, whereby it is responsive to rewards and incentives from the outside world. The BIS is linked with avoidance motivation, whereby it is responsive to threat and punishment. Gray posited that people vary on their sensitivity to BIS or BAS. Someone who possesses a highly reactive BAS is more likely to be very sensitive to reward, and more vulnerable to impulsivity and positive emotions, particularly when approaching a goal. On the other hand, someone who possesses a highly reactive BIS is more likely to be vulnerable to unpleasant emotions, including anxiety and sadness. As such, Gray re-characterized the extraversion-introversion dimensions as impulsivity-anxiety. In Figure 1, we see Eysenck's and Gray's contrasting theories of the extraversion-introversion dimension outlined in conjunction with each other.

Personality Correlates

Although Extraversion-Introversion is a robust personality dimension, it is important to recognize the dynamic nature of personality, in that these dimensions do not exist uniquely in a vacuum. In other words, extraversion interacts consistently with other personality correlates, providing implications for life outcomes and individual differences in behavior.
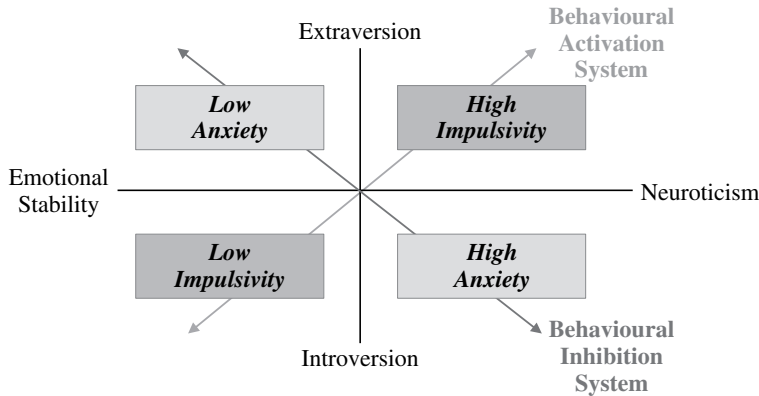
Figure 1 Contrasting Eysenck's dimensions of extraversion-introversion and neuroticism with Gray's dimensions of impulsivity-anxiety (Larsen & Buss, 2018).

Substantial evidence has established that extraverts experience higher levels of positive affect compared to introverts. Additionally, this relationship between extraversion and positive emotions has been replicated across cultures, regardless of personality disposition. While we see that, at its core, extraversion encompasses the core feature of positive affect, additional research has also proposed that extraverts react more positively when presented with positive stimuli.

The relationship between extraversion and positive affect may also be explained by differences in behavioral tendencies. For example, with sociability presenting a key feature of extraversion, researchers have proposed that extraverts not only engage in a greater number of social activities, but they also reap more benefits when engaging in daily social behaviors when compared to introverts. Additionally, extraverts are more likely to view their social interactions, and the world in general, more positively.

Finally, research has examined the link between personality and psychopathology, and has found that extraversion is negatively related to both anxiety and depression. These mental health concerns are often characterized by social withdrawal and low levels of positive affect, which are features relevant to low levels of extraversion. In considering psychopathology as maladaptive extremes of certain personality dispositions, some researchers have identified that very low levels of extraversion (introversion) are linked with social isolation and anhedonia. However, very high levels of extraversion have also been linked with maladaptive risky behaviors such as sexual promiscuity and substance abuse. These concerns may be linked to the greater likelihood for extraverts to seek out and engage in rewarding and highly arousing activities.

See Also

Big Five
Extraversion, Personality Correlates of
Eysenck Giant 3
Eysenck Personality Questionnaire-Revised (EPI-R)

FFM and Facets
Goldberg vs Costa/McCrae Five Factors
Personality and Depression
Positive and Negative Affective States, Assessment of

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Ego Control/Ego Resiliency Theory (ARCH)

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Ego control and ego resiliency are two related personality characteristics that describe how one regulates one's own emotional and behavioral impulses. Ego control represents one's characteristic degree of impulse restraint. Ego resiliency represents the degree to which one can modify impulse restraint across situations in response to differing situational factors that may either enable or restrict impulse expression.

Jack and Jeanne Block, who developed the ego control and ego resiliency constructs in the 1950s, theorized that individuals differ along a continuum from *overcontrol* to *undercontrol* in their characteristic level of ego control (Block & Block, 1980). *Overcontrollers* tend to excessively inhibit their impulses whereas *undercontrollers* tend to excessively express their impulses. Accordingly, *overcontrollers* are highly conforming, withdrawn during social interactions, and resistant to distraction. They are likely to refrain from outwardly expressing their emotions and excessively delay gratification even when both situational conditions and internal needs would favor gratification. Conversely, *undercontrollers* are nonconforming, distractible, and unable to delay gratification. They have emotional fluctuations and overtly express their emotions even when situations would deem expression inappropriate or disadvantageous.

The Blocks' conceptualization of ego control as maladaptive at either extreme was contrary to theories of related constructs that focused only on the detrimental outcomes of insufficient impulse control. However, impulse control can be excessive and impede experience of life's pleasures. The Blocks therefore argued that "the human goal is to be as undercontrolled as possible and as overcontrolled as necessary" (Block, 2002, p. 183).

The Blocks further theorized that individuals differ along a continuum in their characteristic level of ego resiliency. Those who have a relatively high level of ego resiliency are called *ego resilient*. Though these individuals demonstrate a default level of ego control, they can adaptively modify that level in response to varying situational circumstances. Conversely, those who have low ego resiliency are called *ego brittle*. They have difficulty modifying their default level of ego control across situations and consequently experience

anxiety from their challenge with adaptability. In this context, anxiety means a state of disequilibrium between impulse fulfillment and events outside one's control (Block, 2002).

According to the Blocks' ego theory, an ego brittle individual might not experience anxiety in a situation in which her level of ego control is compatible with situational factors. However, if the situation changed or the ego brittle individual entered a new situation, she could have trouble modifying her degree of ego control to match new situational demands. She would instead continue to inhibit or express her impulses as if stuck in one mode of ego control.

Fittingly, ego brittleness was theorized to coincide with extremely low or high levels of ego control (Block & Block, 1980).

The Blocks conceived of ego control and ego resiliency as measurable characteristics of the *ego* (Block and Haan, 1971). *Ego* is an abstract concept developed by Sigmund Freud and subsequently studied by his followers, including the school of ego psychology, which formed to advance and improve his psychoanalytic theory. *Ego* represents a stable, interactive system of cognitive and behavioral routines called personality structures that develop through life experience and help one regulate internal impulses in relation to external demands. The ego's foremost task is to manage anxiety arising when circumstances lead either internal drives or input from the external world to exceed one's ability to deal with them. One's ego control and ego resiliency, which are characteristics of these structures, indicate how successfully one can regulate the tension between fulfilling one's internal drives and meeting situational demands.

Jack Block championed studying characteristics of ego structures over personality traits, for he argued that traits merely represent a summary of past behaviors. Ego structure characteristics instead determine the set of rules by which people will consistently enact patterns of behavior vis-à-vis situational factors. Investigating characteristics like ego control and ego resiliency would consequently move the focus of personality research beyond differences *between* people to differences *within* people across time and situation to provide a more nuanced understanding of their range of behavior (Block, 2002).

Ego Control and Ego Resiliency Development

As members of the school of ego psychology, the Blocks were interested in the development of ego functions. However, unlike their ego psychology contemporaries who focused solely on theory building, the Blocks sought to empirically derive ego control and ego resiliency scores to investigate their antecedents and test their predictive utility. They sought to track life circumstances that may contribute to or result from certain ego control and ego resiliency levels (Block & Haan, 1971).

The most popular measure from which the Blocks derived ego control and ego resiliency scores was Jack Block's own California Adult Q-set (*CAQ*). This measure features a set of 100 statements that a rater would selectively place into one of nine categories ranging from "very uncharacteristic" to "very characteristic" to represent the degree to which each statement describes a target individual. The resulting set of categorized statements would be called an individual's q-sort profile. To determine individuals' ego undercontrol and ego resiliency scores via the CAQ, separate q-sort profiles of a prototypical ego undercontrolled

person and prototypical ego resilient person were created by clinical psychologists to serve as models of these constructs. Individuals' ego control and ego resiliency scores were calculated as the correlations, or amount of similarity of their q-sort profiles, with each of these prototypical profiles.

Behavioral tendencies associated with different levels of ego control and ego resiliency were assumed to be most evident when individuals were under stress. *Ego resilients* were expected to demonstrate self-assured adaptability whereas *ego brittle* individuals were expected to struggle to adapt. The Blocks believed that the interval encompassing child and adolescent development was considered a stressful period because it imposes age-specific demands on maturing individuals. Observing children over time was expected to reveal behavioral displays of and changes in ego control and ego resiliency. These observations would further reveal any influence of these characteristics on personality development.

The Blocks ran a study to follow participants from early childhood to early adulthood to track changes in their ego control and ego resiliency. To measure ego control and ego resiliency scores at different ages, they asked multiple teachers who knew the participants to rate them on the California Child Q-set (*CCQ*: Block & Block, 1980). They ran various experimental tests on participants as another method to derive ego control and ego resiliency scores. The Blocks further administered questionnaires, parent-child experiments, and interviews to assess parents' child-rearing practices. Q-sort profiles of participants in early childhood predicted their ego control and ego resiliency scores in adolescence, though only male participants' ego resiliency in late adolescence was predicted by their childhood profiles. However, both males and females maintained their relative level of ego control in relation to their peers across childhood and adolescence. This study therefore provided evidence that individual differences in ego control and ego resiliency levels are detectable in behavior and remain somewhat stable across early development. It also revealed that parenting style during early childhood influenced participants' ego control and ego resiliency during adolescence and young adulthood.

Across various studies, theoretically predicted correlates of different ego control and ego resiliency levels emerged. Moreover, when configured with low ego resiliency, both high and low levels of ego control predicted certain behavioral and life outcomes. For example, low ego control combined with low ego resiliency has been associated with delinquent behavior including hard drug use and externalizing problems such as aggression and hyperactivity. Conversely, high ego control combined with low ego resiliency has been associated with internalizing problems such as anxiety, social withdrawal, and depressive symptoms.

High ego resiliency, on the other hand, has been shown to predict children's rate of developing friendship understanding and moral judgment. It can also predict competencies and success in various midlife domains including work attainment, social adjustment, and physical and psychological health (Klohnen, 1996). Fittingly, both children and adults with high ego resiliency have been judged as more popular and demonstrating better social skills. Moreover, a reliable association has been found between ego resiliency and the adaptive poles of all Big Five factors. These findings are consistent with the Blocks' theorized definition of ego resiliency as an ability to flexibly manage one's impulses in response to the demands of various situations.

Personality Types

Block believed that personality types could provide fuller yet more integrated personality profiles than disparate personality traits. He also argued that types could predict more life outcomes. To test his claims, Block pursued a longitudinal study of individuals to track changes in their respective configurations of personality characteristics and corresponding life trends.

Longitudinal studies, in general, were rare at the time of Block's investigation, especially any that tracked personality development from adolescence to adulthood. Many developmental psychologists of the time theorized that personality development progressed similarly for all individuals. Block opposed this view yet further argued that there was a finite number of ways that personality characteristics could be viably and sustainably organized within individuals. Consistent with the Blocks' ego theory, he proposed that persons could be categorized into a small set of personality types, each of which is characterized by a unique configuration of characteristics and pattern of personality characteristic change over time.

As detailed in *Lives Through Time* (Block & Haan, 1971), Block enlisted psychologists to create multiple CAQ profiles per individual from data gathered during adolescence and middle adulthood. He ran a statistical procedure called Q-sort analysis that mathematically identified a set of personality types among the participant sample based on similarities between their profiles. The analysis revealed that each gender exhibited a different variety of personality configurations and configuration changes. Thus, a separate set of personality types was produced for male and female participants. The male typology included *ego resilients*, *vulnerable overcontrollers, unsettled undercontrollers, belated adjusters*, and *anomic extraverts*. The last two types represented individuals who had experienced either a positive or negative change in ego functioning from adolescence to adulthood. The female typology included *female prototypes, cognitive copers, hyperfeminine repressives, dominating narcissists, vulnerable undercontrollers*, and *lonely independents*.

Though other researchers were unable to find this full set of types among other samples, interest in personality typologies grew out of Block's endeavor, especially during the 1990s. Researchers became eager to identify characteristic behaviors of child and adult members of types derived from statistical techniques like that used by Block. They were also curious about personality stability in light of developmental changes.

Whether using participant self-ratings, ratings by teachers and parents, or researcher ratings from behavioral observations, the most reliably identified personality typology has included three categories that are most frequently labeled *resilients, overcontrollers*, and *undercontrollers* (Asendorpf & van Aken, 1999; Caspi & Silva, 1995; Hart et al., 1997; Robins et al., 1996; van Lieshout et al., 1995). These types resemble three of the male types identified in Block's longitudinal study (Block & Haan, 1971). In accordance with the Blocks' ego theory, each of these three types is associated with a unique combination of ego control and ego resiliency levels. The *resilient* type is associated with high ego resiliency and moderate ego control whereas both *overcontrollers* and *undercontrollers* are associated with low ego resiliency. Moreover, while each type's characteristics remain moderately consistent across childhood, individual children can often demonstrate enough change to

be categorized as a different type as they mature (Asendorpf & van Aken, 1999; Hart, Atkins, & Fegley, 2003).

Despite being founded on Block's ego constructs and typological research, the set consisting of *resilients, undercontrollers*, and *overcontrollers* has been commonly referred to as the Asendorpf, Robins, Caspi, and Hart (ARCH) types in honor of the researchers who have used various statistical methods to identify the types among diverse cultural and age samples. Their work has revealed each of the ARCH types to be differentially associated with unique levels of the Big Five traits and competencies in various life domains. *Undercontrollers* and *overcontrollers* have been further associated with unique problem behaviors and psychopathologies (Asendorpf & van Aken, 1999; Hart, Atkins, & Fegley, 2003; Hart et al., 1997; Robins et al., 1996; van Lieshout et al., 1995). Nonetheless, some researchers have raised questions on the validity of the ARCH types for having been unable to be consistently found in multiple samples (Costa et al., 2002).

Continuing Research on Ego Control, Ego Resiliency, and ARCH Typology

While ego control and ego resiliency were originally conceived as two single yet related personality constructs, ego resiliency has been theorized to contain several underlying subcomponents: confident optimism, productive and autonomous activity, interpersonal warmth, and skilled expressiveness (Klohnen, 1996). Further research has been encouraged to elucidate how each of these subcomponents contribute to ego resiliency's association with adaptability and well-being in various life domains.

Some researchers have theorized that the ARCH typology likewise features several subtypes (Asendorpf et al., 2001). A methodological debate has been raised regarding which statistical method may more successfully produce the full collection of subtypes. Other researchers have focused on whether the ARCH types have discrete or fuzzy boundaries, leading membership in any type to vary based on subtle differences in one's scores on ego control, ego resiliency, and Big Five traits. To date, the most thoroughly supported evidence indicates that the ARCH types are best understood as categories with fuzzy boundaries (Asendorpf and van Aken, 1999; Chapman & Goldberg, 2011). According to this description, membership in a type category suggests that one's personality configuration bears greater resemblance to that category's prototype than other categories' prototypes. A prototype perspective acknowledges that those who are classified in the same type category may differ in the degree to which they match the category's prototype. This perspective therefore accounts for inter-individual variability both across and within type categories.

Of greatest import to the future of ARCH research, perhaps, is how the ARCH typology compares to the Big Five factors in predicting outcomes – an issue that echoes Jack Block's argument concerning whether personality types are more informative than traits. Several studies have shown ARCH types to predict personality and life outcomes equally or less successfully than Big Five factors over time (Asendorpf, 2003; Chapman & Goldberg, 2011), though a few studies have found types to better predict outcomes that are further in the future (Hart, Atkins, & Fegley, 2003). Regardless, proponents of the ARCH types and

the typological approach believe personality types remain a valuable tool for concisely communicating interpersonal differences to a general audience (Donnellan & Robins, 2010). That is because the ARCH types, per their design, enable one to describe the collective effects of a configuration of personality characteristics. Variable-centered research necessarily narrows one's focus to the individual effects of each personality trait. Whether these different frames of focus may lead to unique insights on personality is yet unknown.

See Also

Behavioral Inhibition/Activation, Personality Correlates of
Big Five
Delay of Gratification
Jack Block
Jens Asendorpf
Longitudinal Research
Personality Development
Personality Stability Over Time

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Emotional Intelligence

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Emotional Intelligence

Emotional intelligence is a set of interrelated competencies to adaptively perceive, understand, regulate, and harness emotions in the self and others (e.g. Salovey & Mayer, 1990; Schutte, Malouff, & Bhullar, 2009) and involves the capacity to control and utilize feelings wisely. It is a positive human attribute that is related to a variety of positive life outcomes. Emotional intelligence may be linked to adaptation – the person's adjustment to external circumstances in order to minimize harm and maximize benefits. For example, the emotionally intelligent person is successful in adapting to circumstances that elicit emotion, either through effective regulation of emotion itself, or through application of more general coping and interpersonal skills.

Salovey and Mayer (1990) developed the original theory of emotional intelligence, and the concept was widely popularized by Goleman (1995). Different models of emotional intelligence can be classified into fairly distinct groups termed ability models and mixed models (Neubauer & Freudenthaler, 2005). Ability versus mixed models of emotional intelligence vary considerably regarding the conceptualizations of emotional intelligence and also with respect to the proposed instruments used to measure emotional intelligence (Schutte et al., 2009). Mixed models conceptualize emotional intelligence as typically displayed emotional abilities and use self-report or other-report measures. The ability model conceptualizes emotional intelligence as potential or latent performance and uses performance-based measures of emotional abilities.

The four-branch model of emotional intelligence (Mayer, Salovey, & Caruso, 2004) proposes that emotional intelligence consists of appraisal of emotions in the self and others, expression of emotions, regulation of emotions in the self and others, and utilization of emotions in solving problems. Subsumed under these branches are functions such as verbal and nonverbal appraisal and expression of emotions and using emotions to motivate as part of the utilization of emotions. In line with this conceptualization they developed first the Multifactor Emotional Intelligence Scale (MEIS) and then its successor, the

Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT), both maximal performance tests modeled after traditional cognitive ability tests.

Emotional intelligence has also been conceptualized as a trait or typical functioning (Neubauer & Freudenthaler, 2005), similar to personality dimensions such as extraversion, openness to experience, or conscientiousness. A trait conceptualization and measurement of emotional intelligence is one proposed by Bar-On (2000), and operationalized through the EQ-I. Bar-On's (2000) mixed model suggests that emotional intelligence comprises emotional self-awareness as well as various skills or characteristics that may stem from the effective use or regulation of emotions, such as good interpersonal relationships, problem solving, and stress tolerance. Other trait conceptualizations of emotional intelligence are offered by the Assessing Emotions measure developed by Schutte et al. (2009) based on the original model proposed by Salovey and Mayer (1990), and the Trait Meta Mood Scale, also based on this earlier Salovey and Mayer definition.

A trait approach to assessing emotional intelligence draws on self or other reports to gather information regarding the display of emotional intelligence characteristics in daily life. Even though some literature presents ability and trait conceptualizations of emotional intelligence as mutually exclusive alternatives (e.g., Mayer et al., 2004), we believe that both are important and complementary dimensions of adaptive emotional functioning.

Relationship between Emotional Intelligence and Positive Outcomes

Emotional intelligence has received substantial attention in psychology as well as in areas such as education and business. A Google Scholar search in March 2020 showed that over the past years 2,660,000 scholarly works mentioned emotional intelligence.

Emotional intelligence compliments the predictive value of traditional cognitive factors that leave a considerable amount of variance unexplained in educational and organizational outcomes. Further, emotional intelligence has incremental validity in predicting academic and social life outcomes, life satisfaction, and happiness above traditional measures of academic intelligence and personality. Trait emotional intelligence may overlap with a general social effectiveness factor of personality, while ability emotional intelligence seems only moderately associated with this factor (van der Linden et al., 2017).

A meta-analysis by Schutte, Malouff, Thorsteinsson, Bhullar, and Rooke (2007) found significant associations between emotional intelligence and mental, physical and psychosomatic health across studies. A later meta-analysis (Martins, Ramalho, & Morin, 2010) including subsequent studies found similar results.

Emotional intelligence is associated with markers of subjective well-being such as more positive mood, greater life satisfaction and more psychological well-being. Further, emotional intelligence is associated with positive characteristics such as prosocial behavior, empathy, parental warmth, family and peer relations, good quality social interaction, and varied organizationally relevant outcome variables such as job satisfaction, organizational commitment, organizational productivity, and trust.

Higher emotional intelligence is linked with aspects of better psychosocial functioning (Schutte et al., 2007), including intrapersonal factors such as greater optimism and interpersonal factors such as better social relationships. Some of these psychosocial factors, such as more social support and more satisfaction with social support for those with higher emotional intelligence, may serve as buffers to physical illness. Schutte, Palanisamy, and McFarlane (2016) found that higher emotional intelligence was associated with longer telomeres, a biomarker indicating better health and predicting lower mortality rate.

Can Emotional Intelligence be Increased through Training?

Schutte, Malouff, and Thorsteinsson (2013) reviewed studies using emotional intelligence training interventions and provided evidence that such training resulted in increases in emotional intelligence and positive outcomes in important life domains. Typically emotional intelligence training includes psycho-educational elements and application of cognitive behavioral strategies (Schutte et al., 2013).

For example, Kotsou et al. (2011) also found that participants in an emotional intelligence intervention condition reported greater increases in life satisfaction, lower self-reported stress levels, and better cortisol levels as measured by saliva assays. In an organizational study, Groves, McEnrue, and Shen (2008) provided employees with an 11-week training program that presented information on emotional intelligence and modeled the competencies comprising emotional intelligence. They found that those in the training group had significantly higher typical emotional intelligence after the training period than employees in a comparison group.

Future Directions

Future research and applications of emotional intelligence could focus further on group-level emotional intelligence and societal and policy implications of emotional intelligence training interventions. Most emotional intelligence research and application have focused on individuals; however, emotional intelligence can also be conceptualized as a collective or group characteristic that is associated with group performance. More research focusing on collective emotional intelligence at the level of work-groups, organizations, families, and societies would help open further avenues for beneficial applications relating to emotional intelligence.

An example of possible societal and policy implications of emotional intelligence training is provided by Mikolajczak and Van Bellegem (2017). Through assessing associations between participants' emotional intelligence and their health care expenditures, they found that every 1% increase in intrapersonal emotional intelligence corresponded to a 1% decrease in healthcare costs. Coupled with findings regarding the feasibility of increasing emotional intelligence through training, this finding suggests that societal programs aimed at increasing emotional intelligence might have economic benefits as well as enhancing personal well-being.

The utility of high emotional intelligence in various realms of life and endeavors might be further explored. For example, Schlegel, Mehu, van Peer and Scherer (2018) examined the role of emotional intelligence in negotiation outcomes and found that higher emotional intelligence was associated with greater dyadic gains, benefiting both negotiation partners, as well as greater cooperativeness and liking of negotiation partners.

Future research and applications might investigate further the buffering effects of emotional intelligence for individuals in high-stress occupations or for those in especially challenging situations. Research shows that higher emotional intelligence helps in reducing the impact of high work-family conflict on poor mental health among nurses. Such findings have implications both for investigating other populations experiencing stress or challenge and suggest that emotional intelligence training studies involving such populations might be useful.

See Also

Emotional Intelligence, Assessment of
Emotional Intelligence, Correlates of
Emotional Intelligence in the Workplace
Personality and Positive Psychology

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Erikson's Stages of Psychosocial Development

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Background

Theory Development

The early stages of Erikson's theory of psychosocial development correspond with the Freudian psychosexual stages of development. More specifically, Erikson's first stage corresponds with the Freudian oral stage, the second stage corresponds with the anal stage, Erikson's third stage corresponds with the phallic stage, the fourth stage corresponds with latency, and Erikson's fifth through eighth stages map onto Freud's genital stage (Franz & Erikson, 1993, 1950; White, 1985). While Freud's theory evaluates an individual's growth and development from infancy through adolescence, Erikson's theory assesses development across the lifespan, from infancy through late adulthood, and also considers cultural factors that may impact advancement through the stages (Erikson, 1993, 1950; Slater, 2003). Furthermore, Erikson focuses on the growth of the ego while Freud focused on the role of the id (Erikson, 1993/1950).

Lifespan Development

Evaluating early child development may offer greater context for assessing later adult psychopathology. Erikson's theory of development explores elements of child development and the psychosocial crises that arise through eight life stages. Erikson's theory takes into account individual readiness for development and societal influences. As such, the stages refer to a developmental phase rather than specific age ranges (Erikson & Erikson, 1998). The eight psychosocial crises are also referred to as tensions between one's syntonic and dystonic tendencies. Through mastery of the syntonic tendencies, the former of each tension couplet, individuals develop a sense of identity, ego integrity, and,

ultimately, fulfillment as contributors to the success of the next generation (Erikson, 1993, 1950; Erikson & Erikson, 1998).

Ego Qualities

Complementary to each psychosocial crisis, Erikson notes a specific quality that is associated with each stage of development. The qualities are Hope, Will, Purpose, Competence, Fidelity, Love, Care, and Wisdom. For example, upon mastery of the first stage of development where an infant builds a sense of trust in their caregiver, the infant gains the foundational quality, or strength, of Hope, which will remain with the individual through the subsequent stages (Erikson & Erikson, 1998). These qualities contribute to the readiness of individuals to transition to the next stage in development, and, more generally, from childhood to adulthood (Erikson & Erikson, 1998).

Erikson's Stages of Psychosocial Development

Basic Trust vs. Basic Mistrust

Erikson's first stage arises from the tension between trust or mistrust that result from interactions between an infant and their caregiver (Erikson, 1993, 1950). When an infant's basic needs of comfort, food, and safety are satisfied, the infant builds a sense of trust in the caregiver. Infants who do not develop a sense of trust may be susceptible to later personality dysfunction and psychopathology; however, these outcomes can be remedied through the reestablishment of a trusting relationship. Finally, Erikson notes that the quality of the infant-caregiver relationship is the most important contributor to the development of trust (Erikson, 1993, 1950).

Autonomy vs. Shame and Doubt

Erikson's second stage explores the development of autonomy or self-sufficiency during toddlerhood. This stage is also referred to as the phase when children learn control and to "hold on and let go" (Erikson, 1993, 1950). With proper caregiver support, young children will develop basic autonomy, such as using the toilet properly. This autonomy will strengthen their feelings of self-confidence and independence, which will enable them to successfully overcome future challenges. Should caregivers fail to foster autonomy or support and protect their child, the child may develop shame in their abilities and lack the confidence to be self-sufficient in later experiences. These early experiences of shame and doubt may also contribute to the development of neuroses as a child attempts to control their environment and reduce the possibility of experiencing feelings of shame. Autonomy is preserved throughout childhood and into adulthood by societal elements, like a judicial system (Erikson, 1993, 1950).

Initiative vs. Guilt

The third stage of Erikson's theory centers around the tension between initiative and guilt during the early childhood years (Erikson, 1993, 1950). Children in this stage are exuberant

with energy and are driven by their initiative to discover by constructing objects and exploring their environment. With proper support from caregivers and teachers, children feel accomplished in their exploration and will continue to produce work beyond this stage. When a child's parents and teacher do not properly guide a child in expressing their excitement, the child may experience feelings of guilt. In adulthood, these feelings may be expressed as denial or through psychosomatic symptoms (Erikson, 1993, 1950).

Industry vs. Inferiority

Erikson's fourth stage of development explores the tension between feelings of industry and inferiority in school-aged children (Erikson, 1993, 1950). Children master this stage through the exploration of their environment and the successful use of tools to produce desirable outcomes. This stage is crucial when developing children's self-confidence, which, when diminished, may result in feelings of inferiority or incompetence, which may persist through future stages of development. At this stage, school is a new setting where children explore and develop. A child's early family experiences have either prepared the child for the expectations within the school, or the school life does not maintain the support offered throughout earlier developmental stages. At this stage, children also develop initial feelings of identity, such as when evaluating their clothing or their cultural group (Erikson, 1993, 1950).

Identity vs. Role Confusion

The fifth stage of Erikson's theory centers on the tension between the concepts of identity and role confusion in adolescence (Erikson, 1993, 1950). From birth through the early school years, children have been exploring their identity and natural talents. In this next stage, adolescents explore their identity, manage the expectations of peers, parents, and society, and also navigate the biological and physical changes associated with puberty. Ego identity is achieved through an adolescent's ability to integrate these separate areas of identity. An adolescent may suffer from role confusion when they are unable to form an identity. Role confusion may cause adolescents to abandon their unique identity and conform to peers' norms in order to reduce feelings of discomfort. Erikson also notes that in this stage of development the adolescent mind is in the transition from the child brain to the adult brain (Erikson, 1993, 1950).

Intimacy vs. Isolation

Erikson's sixth stage of development focuses on the tension between intimacy and isolation during early adulthood (Erikson, 1993, 1950). Individuals enter this stage following the previous stage's exploration of identity with a readiness to engage with others and form close relationships. When young adults avoid the experiences of intimacy they may choose to isolate themselves, especially from those who seem threatening to one's identity. Individuals at this stage are susceptible to feeling both competitiveness and intimacy toward the same person, and navigating these experiences can lead to the development of an ethical sense, a key component of adulthood. Isolation at this stage may lead to psychopathology later in

life, and isolation with a partner at this stage may be a means of avoiding advancement towards the next stage of development (Erikson, 1993, 1950).

Generativity vs. Stagnation

The seventh stage of Erikson's theory focuses on the tension between generativity and stagnation during the transition into adulthood (Erikson, 1993, 1950). While the previous stages have centered on child and young adult development, this stage focuses on the feelings of fulfillment associated with parenting or caring for the next generation. Poor mastery of generativity results in stagnation, or minimal productivity and contribution to the next generation (Erikson, 1993, 1950).

Ego Integrity vs. Despair

Erikson's eighth stage of development explores the tension between ego integrity and despair during older adulthood (Erikson, 1993, 1950). Individuals in this stage reflect on their accomplishments, successes, and challenges. Ego integrity is a state of mind that stems from one's feelings of productivity and meaningfulness in one's lifestyle. Feelings of despair result from regret and, as Erikson (1993, 1950) notes, the feeling that there is "too short [remaining time] for the attempt to start another life and to try out alternate roads to integrity." Those who feel despair tend to have a greater fear of death than those with ego integrity. Erikson (1993, 1950) notes that there are cultural differences in the processes that lead to ego integrity. Bringing the eight stages of development full circle, Erikson (1993, 1950) also notes that infants master of the first stage of development, basic trust vs. basic mistrust, through observing and trusting community leaders who have integrity (Erikson, 1993, 1950).

The Ninth Stage

Joan Erikson, the wife and collaborator of Erik Erikson, offers a ninth stage of development specific to older aged adults. The ninth stage is a reflection of the previous eight stages with the tensions reversed. For example, in this stage, the tension between basic mistrust and basic trust is oriented such that older adults may tend to mistrust their abilities due to the degeneration of physical abilities. Upon reflection of the significance of overcoming the psychosocial crises, Joan notes that "it is important to remember that conflict and tension are sources of growth, strength, and commitment" (Brown & Lowis, 2003; Erikson & Erikson, 1998).

Erikson's Stages Today

Current research aims to further evaluate Erikson's theory. Research by Marcia (2002) evaluated Erikson's theory of development during adulthood. Brown and Lowis (2003) evaluated the ninth stage of Erikson's theory in a group of women. Results support the notion of

an independent ninth stage and further research assessed the correlation between this ninth stage and life satisfaction (Woods & Witte, 1981). Researchers continue to operationalize Erikson's theory and develop qualitative means of measuring the developmental stages, such as through the Erikson Psychosocial Stage Inventory (EPSI; Rosenthal, Gurney & Morre, 1981) and the Measures of Psychosocial Development (Hawley, 1988). Recently, Erikson's theory on the stages from identity in adolescence to intimacy in early adulthood has been further supported through a longitudinal assessment of young adults (Beyers & Seiffge-Krenke, 2010).

See Also

Defense Mechanisms
Personality Development
Personality Development Across the Lifespan

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Evolutionary Theory of Personality

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Personality is an adaptation. That is to say, personality traits have evolved over time in response to challenges to survival and reproduction, and therefore, were designed to solve adaptive problems frequently encountered by humans' early phylogenetic ancestors. Personality can be understood as a person's characteristic thoughts, emotional responses, and behaviors. Personality traits are patterns of those relatively enduring dispositions that influence behavior across time and situations. Myriad research has supported the contention that personality can be captured by five factors, conceptualized as *openness*, *conscientiousness*, *extraversion*, *agreeableness*, and *neuroticism* (think OCEAN). Openness is associated with the common phrases like "open-minded" or "up to try anything new," and its essence is a divergent cognitive style that seeks novelty and complexity, creatively linking disparate information. Conscientiousness involves orderliness, dutifulness, reliability, and self-control in the pursuit of goals. Extraversion is associated with dominance, sociability, positive emotion, exploratory activity, and reward-seeking behavior. Agreeableness is more or less synonymous with being kind, sympathetic, cooperative, warm, and considerate. Neuroticism can be understood as the tendency to experience negative emotions such as fear, sadness, anger, anxiety, and guilt, as well as the variability in one's emotions over time.

Personality traits are heritable (see Heritability of Personality entry). Heritability is the proportion of phenotypic variance that can be attributed to variance in genetic influence among individuals. A phenotype is the manifested or perceivable traits of an organism (e.g. height, athleticism) and its variance can be broken down into two components: genetic influence and environmental influence. Heritability is the former; it is an estimate of the portion of variance in personality that can be attributed to differences in people's underlying genetic makeup. Heritability is an estimate of genetic influence based on the sampled population (of many individuals). That is, it cannot be estimated from or applied to a single person. Because heritability is estimated from a group of individuals, its estimated proportion depends on the variation among those individuals. The main point, though, is that because traits are heritable, they have been acted upon by natural selection.

Evolution by natural selection is the process by which the heritable characteristics of biological populations change over successive generations. Phenotypic traits that allow organisms (including humans) to successfully respond to challenges in their environment, and promote survival and reproduction, are transmitted to offspring via DNA (genetic information). Traits that are advantageous, or promote the survival and reproduction of organisms, become increasingly prevalent in the population. Likewise, organisms with disadvantageous traits are less likely to survive and reproduce, and these disadvantageous traits are removed from the population. *Adaptations* are evolved phenotypic solutions to recurrent adaptive problems of survival and reproduction; they exist in the present population because they solved problems for ancestral populations. *Natural selection* is therefore a whittling mechanism. Environmental pressures not only include climate, terrain, and predators, but also access to resources such as food, water, cooperative social partners, and fertile mates. Humans' most distinct adaptation is culture, which facilitates cooperation, division of labor, shared resources, safety, and access to the group's stock of knowledge (see Baumeister, Maranges, & Vohs, 2017). *Fitness* is not necessarily physical strength, but rather having traits that facilitate one's survival and reproduction in a given environment. *Inclusive fitness* involves promoting the survival and reproduction of genetic relatives, who also carry copies of the individual's genes. Humans have evolved personality to meet survival and reproduction demands, such that different traits and different levels of traits carry different inclusive fitness advantages.

There are many evolutionary theories of personality, and we group these according to what they explain about personality: (1) why particular personality traits emerged and (2) why there is variation among people in those traits.

Emergence of Specific Traits

The first set of evolutionary explanations of personality answer the question of why personality tends to reduce to the five main factors (OCEAN). That is, when we judge one another's personalities, why do we notice those particular traits and not others? Consider whether someone is often sleepy. Although this might be a trait we notice when interacting with a person, sleepiness is probably not one of the first traits we would use to describe a person. We would, however, be quick to notice and describe our social partners as kind, talkative, or reliable. Personality researchers have forwarded a few explanations as to why the main factors of personality are OCEAN and not others.

Success of the Individual

One theory describing the source of personality factors contends that personality traits emerged from more primal emotional circuits (Montag & Panksepp, 2017). According to this perspective, primal emotions "represent the phylogenetically oldest part of human personality, with that foundation driving behavior and the more cognitive aspects of

personality via a bottom-up affective developmental-learning trajectory." Seven primal emotions have been identified. Four are emotional circuitries for positive emotions: *seeking, lust, care*, and *play*. Three emotional circuitries provide the foundation for negative emotions: *fear, rage/anger*, and *sadness/panic*. Openness arises from seeking, and extraversion from play. Neuroticism rests on all the negative emotional circuits, but especially sadness and fear. Agreeableness emerges from high care and low anger. Conscientiousness, however, is not observed in most mammals and may therefore not be linked to any particular emotional systems. Indeed, associations among the personality factors (except conscientiousness) and primal emotions tend to be consistently strong across individuals from different countries (i.e., the USA, China, Germany) and across gender and age groups. This human-wide pattern grants support for the contention that personality traits emerged from the primal emotional systems of our earlier ancestors.

More than just being by-products of primal emotional systems, the Big Five factors of personality (OCEAN) are functional in and of themselves (MacDonald, 1995). That is, they are motivational systems that push individuals toward fitness-benefiting goals or away from fitness-harming threats. Extraversion, for example, promoted reward-driven goal pursuits. Those who are extraverted are motivated to pursue reproductive opportunities by initiating social interactions with potential mates. Extraverts also pursue social status and power through dominance, which motivates individuals to seek control over others and make group decisions.

Conscientiousness may have evolved as a system that motivated individuals to persist at tasks that were not otherwise intrinsically rewarding. Conscientious individuals are better able to stick to long-term goals by delaying gratification and following through. This tendency, for example, might have facilitated individuals' collecting enough food to last a few days rather than procrastinating to the next meal to forage or hunt. Such preparations would have reduced the dire outcomes resulting from storms or famines. Conscientiousness also involves the trait of dutifulness, suggesting that it may have evolved to motivate individuals to attend to the possibility of punishment. Those who are conscientious are better at following social rules, which helps avoid social exclusion and revenge.

Agreeableness might have evolved to facilitate the formation of supportive and cooperative social bonds. Those who are highly agreeable would feel motivated to spend time with others, share their resources, and provide help to others in times of need. Agreeable individuals would thus better form long-lasting, reliable, and cooperative relationships. These bonds would be advantageous for raising children. Consider for example, how much easier raising a baby is with the care of two cooperative parents compared to the efforts of just one. Social bonds are also useful for gaining access to valuable information and receiving aid when in need or danger.

Neuroticism may have evolved as a threat-detection system, which motivated individuals to attend and respond to cues in the environment signaling danger. Anxiety and worry are major components of neuroticism and can promote preemptive planning and action. Individuals high in neuroticism may have been more likely than those low in neuroticism to over-prepare for a long journey by packing extra food and supplies. Through fear,

neuroticism also promotes avoidance of dangers and risks. A highly neurotic person might be more likely to keep an eye out for approaching predators, avoid handling poisonous snakes, or back away from precipitous cliffs relative to a less neurotic person. Such risk aversion would have prompted individuals to err on the side of caution and reduce the odds of injury or death.

Mate Choice

If personality traits are predictive of individuals' inclusive fitness, then this information should be relevant to mating decisions. That is, when choosing with whom to reproduce, individuals should attend to which potential mates possess qualities that would promote survival or reproductive success. All else equal, individuals would benefit if their offspring possess their mate's advantageous traits because their offspring also possess their own genetic material. Essentially, children are the vehicle for one's own genes as well as the genes of one's mate. Evolutionarily-minded researchers have contended that we discern these personality traits in others because those traits reliably predicted fitness and reproductive success of potential mates in phylogenetically earlier times.

If humans discern these traits in others because the traits indicated likely reproductive success, then these traits should be central components of mate value (Ellis, Simpson, & Campbell, 2002). That is, when assessing who would make a desirable romantic partner, humans should especially emphasize the five personality traits. These traits provide different routes to resources, whether directly or indirectly, such as via attainment of status or supportive bonds.

Openness, which encompasses creativity and curiosity, might have indicated which potential mates would derive novel solutions to group dilemmas or make unique contributions to the group's success, thereby promoting social status. Conscientiousness, on the other hand, might predict which potential mates one could depend on. Because conscientiousness is associated with following through and persistence, it might indicate which potential mates would work hard to obtain status within the group. Furthermore, conscientious individuals tend to adhere to social and moral norms, suggesting that these individuals might be less likely to commit infidelity or abandon a mate.

Through its links to dominance and gregariousness, extraversion might predict which potential mates would be likely to form social alliances and climb the status hierarchy. Agreeableness, which indicates traits such as cooperativeness and empathy would indicate which individuals would be attentive and caring romantic partners and future parents. Indeed, individuals low in agreeableness behave abusively, neglectfully, and selfishly in romantic relationships (Buss, 1991). Neuroticism, which describes a tendency to experience negative affect, would indicate how potential mates would cope with stress. Because neurotics are highly sensitive to threats in their environments, neuroticism might also proxy which individuals would be prone to jealousy. A woman's ability to assess potential jealousy is highly advantageous and consequential because male jealousy is one of the leading causes of homicide among romantic partners (Daly & Wilson, 1988). Thus, from this perspective, discerning potential mates' personality facilitated mate choice to promote inclusive success.

Social Choice

A similar evolutionary theory contends that we discern the five personality traits in one another because those traits reveal information not just about potential mates, but about social partners more broadly (Buss, 1991). That is, humans judge one another on these personality factors because these factors indicate important information about people's probable social behaviors. We notice that someone is kind before we notice that they are fidgety, for example, because kindness is more predictive of someone's future social actions (which are likely to influence our own fitness) than is fidgeting, which is less likely to influence our own fitness.

These perceptions might shift, however, depending upon the social relationship we are considering. Imagine choosing a financial advisor. You might value risk aversion, because you would not want them to make risky decisions with your finances. However, you might be less attuned to the risk aversion level of your neighbors. And indeed, most of the personality descriptions humans use are evaluative, or indicate how well that person would fill various social roles. Essentially, from this perspective, personality evolved as an assessment system to detect differences among individuals in socially-relevant tendencies. Individuals who could accurately assess their group members' general dispositions would make better social decisions. Their discernment would help them choose even-handed leaders, loyal mates, and trustworthy friends.

Hogan (1995) extended this theory of social choice to larger group dynamics. He argued that we assess these traits in one another because this knowledge allowed us to form more successful social groups. He developed a personality inventory based on the Big Five (the Hogan Personality Inventory) that measures the primary characteristics that affect group dynamics (e.g., leadership style, team effectiveness). For example, variation in conscientiousness predicts whether someone is a perfectionist and micro-manager or is willing to take risks. Those with lower or higher levels of conscientiousness would be better suited for some roles over others (e.g., seeking out new territories vs. taking care of children). From this perspective, then, humans evolved to assess each other's personality traits because gauging these allowed more effective role assignment and, hence, group efficiency and effectiveness.

Variation in Personality

The second set of evolutionary theories of personality seeks to explain why individuals vary in personality. That is, why are some individuals highly open while some are quite low in openness? If there were an optimal level of openness, for example, then natural selection should have weeded out those individuals who fell far below or above this point. Consider the fact that nearly every human has two eyes. Apart from mutations or disease, there is essentially no variation across individuals in this trait. Two eyes are optimal. Unlike number of eyes, personality shows substantial variation. Evolutionary theorists have therefore forwarded explanations as to why this level of variance has been maintained in the population.

Assortative Mating

One theory about how variation in personality has been maintained is rooted in kin section and mating. Kin selection describes how organisms promote the survival and reproductive success of other organisms carrying similar genes to themselves. One primary example of kin selection is parenting. Although not explicitly aware of this motivation, parents promote the success of their offspring because those offspring carry copies of each parent's genetic material. By helping their children succeed, parents are promoting the success of their own genes. Kin selection also applies to other family members. The odds that an individual's immediate relative (e.g., sibling) shares similar genes is much higher than the odds a stranger does. Therefore, individuals feel stronger motivations to help and cooperate with their family members, on average, than they do with random strangers.

The theory of kin selection has been applied to how individuals choose mates. When investigating the mating decisions people make, one pattern consistently emerges: people choose mates who are similar to themselves. This phenomenon is called assortative mating and it applies for physical traits (e.g., height, skin color), mental abilities (e.g., IQ), and, yes, personality. This pattern of mate choice makes sense in light of kin selection. If individuals choose mates who have the same traits as themselves, the likelihood that those mates have similar genes (which create those traits) is higher than if individuals choose mates with entirely different traits. When genetically similar mates reproduce, they create an offspring who is even more similar (both in traits and in underlying genes) to each parent. Therefore, by choosing a mate with similar genetic traits, a person enhances his or her genetic relatedness to offspring. Note that this does not necessarily entail choosing mates from the same lineage or family, as that would be maladaptive. Rather, people prefer mates to themselves and therefore clusters of genes similar to their own.

Although assortative mating might have evolved because it enhanced the genetic relatedness of parents to offspring, another consequence is that it maintains genetic variation in traits. Imagine a man who is a 2 (out of 10) in extraversion; he is incredibly introverted. Imagine he assortatively mates with a woman who is also a 2 in extraversion. Their children might be 2s in extraversion, but by shuffling of genetic material, they might also be 1s. Their children, then, would be at the tail end of the distribution of extraversion. Imagine instead that the man had mated with a woman who was an 8 in extraversion (*dis*assortative mating). Their children might be 6s in extraversion, or closer to the mean of extraversion. Assortative mating maintains variation in the population by increasing the number of individuals who fall at the tail ends of a distribution. Indeed, researchers have contended that assortative mating on body weight may be contributing to the recent obesity epidemic. Essentially, those at the high end of the distribution of weight (e.g., obese) are assortatively mating, and producing children who are also at the extreme ends of this distribution.

Trade-Offs

Another evolutionary theory of personality, the Tradeoff Theory of Personality, contends that each personality trait grants both benefits and costs. Differing environments favor higher or lower levels of each trait, maintaining variation. That is, personality traits can be seen as individual reaction norms with different fitness consequences in different environmental niches (Penke, Denissen, & Miller, 2007). Differing environmental demands

produce balancing selection, whereby natural selection maintains genetic variation by selecting both extremes of the trait under different conditions (Penke et al., 2007). When a trait's effect on fitness varies across space or time, significant genetic variation can be maintained in populations.

Nettle (2006) outlined the potential fitness costs and benefits associated with each of the five-factor personality dimensions. Extraversion is adaptive by facilitating exploration of novel aspects of the environment, access to resources through more social partners, and access to mates for reproduction. Indeed, extraverts are more likely to commit infidelity or terminate one relationship for another, which may translate into securing mates of higher quality. Extraversion also produces negative outcomes associated with risk-taking and sensation-seeking, such as serious injury, arrest, and mortality, which impair fitness.

Neuroticism promotes vigilance to threats, such as detecting predators. Anxiety, for example, enhances detection of threatening stimuli by speeding up the reaction to them, interpreting ambiguous stimuli as negative, and locking attention onto them. Further, neuroticism is positively correlated with competitiveness and academic success (for people with good coping strategies). With respect to costs, neuroticism predicts psychiatric disorders (particularly depression and anxiety), impaired physical health (through chronic activation of stress mechanisms), relationship failure, and social isolation.

Openness is associated with socially-valued attributes such as creativity. Indeed, poets and visual artists have higher numbers of sexual partners than controls. However, the unusual thinking style characteristic of openness can lead to unfounded beliefs about the world, from supernatural beliefs to full psychosis. Openness is associated with depression and schizophrenia, and therefore reduced reproductive success.

Conscientiousness also carries both costs and benefits. It predicts health-promoting behaviors, risk avoidance, moral principle, perfectionism, self-control, long-term goal persistence, and consequently, status attainment and longer life expectancy. Conscientious individuals are less likely to engage in delinquency and antisocial behavior. Traits associated with conscientiousness – moral principle, perfectionism, and self-control – however, are linked to eating disorders and obsessive-compulsive personality disorder. These traits may also lead highly conscientious individuals to pass up opportunities that offer immediate rewards (e.g. short-term mating).

Agreeableness is associated with empathy and theory of mind and therefore helps individuals cultivate social support, cooperative relationships, and avoid violent or hostile interactions. Agreeableness is not monolithically adaptive, however. Highly agreeable people can be manipulated, taken advantage of, or outcompeted by cheaters or by those whose trust is conditional. In situations where aggression or conflict is advantageous, agreeable individuals will miss out on opportunities. For example, among modern executives, agreeableness is negatively related to income, status, and creative accomplishment. From this perspective, both higher and lower levels of each personality trait carry costs and benefits, leading to no single optimal value for any trait. If the costs and benefits also vary across space and time (i.e. due to environmental changes), variation will be maintained in the population.

Frequency-Dependence

Some theorists suggest that the extent to which a personality trait is adaptive depends on the frequency of that trait within a population (Maynard Smith, 1998). *Frequency-dependent*

selection is when the prevalence of the trait within the immediate social environment determines the selective advantage of a trait. Some traits are only advantageous when they are relatively rare in the population. Part of this advantage is because competition is most intense among those pursuing the same strategy. For example, if there are two men who want to be the group's carpenter, they will have to compete with one another for that role. If one wants to be the group's carpenter and one wants to be the group's watchdog, there will be less competition between the men.

One example of a frequency-dependent trait is psychopathy, which is characterized by egocentrism, impulsivity, inability to form lasting relationships, superficial charm, and a lack of social emotions (i.e., shame, guilt, empathy). Psychopaths often pursue exploitative mating strategies. For example, psychopathic men are sexually precocious and tend to have many sexual partners, illegitimate children, and failed marriages (i.e., divorces). Psychopathy might be a "cheating" strategy used by those who are unlikely to succeed in tasks that require long-term self-control or cooperation. However, this cheater strategy will only be successful if people fall for it. The more psychopaths in the population, the more people become distrusting. If people are no longer easily duped, the psychopaths will be less successful (Mealey, 1995). The success of psychopaths is therefore frequency-dependent: they are able to successfully exploit others until there are too many other psychopaths in the population.

Because traits usually carry both fitness advantages and disadvantages, some individuals with extremely high levels of seemingly maladaptive traits may benefit from engaging in *high-risk evolutionary strategies*. Genes predisposing people, especially males, to extreme traits will be maintained in a population if those traits have a high reproductive payoff for some, even if they generally reduce fitness in others. Consider risk taking. This may be a generally disadvantageous trait insofar as it increases the risk of injury or death. However, if one male takes extreme risks and subsequently becomes the group leader and reproduces with many women, risk taking will pervade the population. Furthermore, his children will likely have lower levels of risk taking because his genes have been watered down by the mother's. This less extreme level of risk taking may be generally advantageous for his children. Consider bipolar affective disorder. Although bipolar disorder can harm those with severe levels, it is also linked to heightened creativity. Those with milder levels (such as children of those with the full disorder) might reap fitness advantages from the creativity, maintaining genes for the disorder in the population. Likewise, some children with ADHD go on to achieve high levels of success as entrepreneurs, sales people, or entertainment industry powerhouses in adulthood as a result of their heightened energy, drive, and goal-pursuit. Another example is sensation seeking, which is associated with imprisonment. However, sensation seekers who are well socialized are known as creative people, including highly successful scientists, artists, political leaders, and entertainers. From this perspective, some seemingly maladaptive traits can have high payoffs if they promote the reproductive success of a few individuals (often men, because men can potentially sire many more children than women across a lifetime).

Sex Differences in Utility

Men and women faced different selection pressures across human evolution, and consequently there are sex differences in personality (MacDonald, 1995). Women invest more

heavily in reproduction (e.g., pregnancy, childbirth, lactation) than men and have therefore evolved dispositions, such as higher levels of nurturance/love, which facilitate parental investment and care for their relatively dependent newborns. At the extremes of the distribution of that personality dimension is dependency disorder, which is characterized by extreme need for affection and is much more prevalent among women. Men, on the other hand, who can sometimes achieve high reproductive success by investing much less in any one child than women, can benefit from a relatively high-risk strategy that promotes more mating opportunities. Hence, for men, personality attributes including dominance, risk taking, and novelty and sensation seeking can be adaptive. Similarly, the impulsivity that underlies pursuing extramarital and short term mates holds more potential fitness benefits for men than women. Neuroticism, which predisposes individuals to avoid risk and suppress behavioral approach, is a conservative personality reaction to environmental contingencies. Because women are heavily involved in childcare, they may more strongly benefit from risk aversion. Indeed, women tend to be higher in neuroticism than men, on average. Across cultures, women reported themselves to be higher in neuroticism, agreeableness, warmth, and openness to feelings, whereas men were higher in assertiveness and openness to ideas (Costa, Terracciano, & McCrae, 2001).

Environmentally-Selected Variation

Environmental niches, or an organism's immediate ecosystem, shape which phenotypic traits are adaptive, including personality. That is, the immediate context in which individuals find themselves will dictate which level of a personality trait is adaptive. For example, researchers have compared the personalities of Italian coast-dwellers to Italians living nearby on three small islands (Camperio Ciani, Capiluppi, Veronese, & Sartori, 2007). On average, people whose families had lived on the islands for at least 20 generations were much lower in extraversion and openness than both mainlanders and more recent immigrants. This finding suggests that the fitness benefits of extraversion or openness were lower in island locations across history. Perhaps because there are fewer novel individuals with whom to interact on small islands and it is relatively difficult to relocate, extraversion and sociality become less advantageous. Another example is the finding that the 7R allele of DRD4 dopamine gene locus, which is associated with risk taking, extraversion, and novelty seeking, is much more prevalent in European and American populations than in Asian populations. This cultural discrepancy suggests that these traits (and their underlying genetic profiles) were more strongly favored among individuals who migrated to new environments or found themselves in resource-rich conditions (characteristic of the New World).

   Other arguments about environmental niches focus on the affordances granted by culture and an expansive society (Lukaszewski, Gurven, von Rueden, & Schmitt, 2017). Some theorists propose that there is greater personality variation among individuals when the social environment is variegated. That is, complex societies offer many opportunities for specialization, which favors various traits. Consider, for example, a community that subsides mainly off farming. If everyone is farming, there should be relatively consistent selective pressures across individuals. However, in more complex societies, where there are opportunities to fish, hunt, farm, construct shelters, entertain, etc., each niche will create selective advantages for the traits that best serve that role. Hunting might select for strong

and courageous individuals, while entertainment might select for individuals who are open-minded and gregarious.

Life History Theory

Not only is there personality variation within populations of individuals, but also between populations. Rushton (1985) forwarded life history theory, which contends that organisms (including humans) face certain trade-offs. For example, an organism could produce many offspring, but then the organism would not have the time or resources to invest heavily in each offspring. Consider, for example, salmon, who spawn thousands of eggs, simply releasing them into the river water. Now consider elephants, who give birth to one calf around every five years and invest greatly in each calf. Elephant fetuses take up to 22 months to fully develop in utero and when born, can drink up to 10 gallons of their mother's milk a day. Because elephants produce few offspring, they can make substantial investments (e.g. time, protection, calories) in each. These species have responded to a critical reproductive trade-off with quite divergent strategies. Humans must also face the reproductive trade-off of producing *either* many offspring in whom less can be invested or few offspring in whom much can be invested.

Life-history theory, then, describes the series of trade-offs every biological species faces and outlines how the emergent responses will manifest. The answers to these biological trade-offs tend to cluster together, such that they form two ends to a continuum (Figueredo, Vásquez, Brumbach, Sefcek, & Kirsner, 2005). One end is the *k*-strategy, or *fast strategy*, in which organisms invest heavily in maintaining their own bodies (i.e. somatic effort) and promoting the growth and development of their children (i.e. parenting effort). Elephants are examples of a highly *k*-selected species. On the other end of the continuum is the *r*-strategy, or *fast strategy*, in which organisms invest heavily in attracting mates (i.e. mating effort) and producing multiple offspring (i.e. reproductive effort). Salmon are an example of a highly *r*-selected species.

Relative to nearly all species, humans are extremely *k*-selected. Humans take a long time to reach reproductive maturity and invest heavily in their children. Nonetheless, within humans, there is variation among individuals along the *r* to *k* continuum. The environments in which different populations evolved predict where along the continuum populations lie. Environments characterized by a high extrinsic mortality risk select for *r*/fast. Environments where people are at risk of dying by causes that are unpredictable or uncontrollable (such as by the prevalence of infectious diseases) favor quick and voluminous reproduction. If there is a chance the individual could die tomorrow, the individual should not delay reproduction. If there is a chance many of the individual's children could also die, the individual should produce many children to increase the odds that at least one (if not more) survives.

Environments that are predictable, stable, and contain relatively controllable risks of death, on the other hand, select for *k*/slow. Seasonal shifts in temperature and food shortages are predictable and so their consequences are, to some degree, controllable. For example, if a group of individuals knows that winter is approaching, they could work together to prepare by harvesting food and building protective housing. Winter, unlike pathogens, can be prepared for (Rindermann, Woodley, & Stratford, 2012). These controllable environments

would select for traits such as long-term planning and delayed gratification. An individual in a stable, predictable environment is not at high risk of impending death, and can therefore afford to develop slowly before reproducing (i.e., somatic effort). If the individual's children are also not at risk of impending death, the individual can afford to invest heavily in a few children (i.e., parental effort), rather than minimally in many. *K-selected* individuals, as life history theory would predict, delay reproduction, invest heavily in children, and display enhanced executive control, which allows for planful thinking and delayed gratification.

One way that humans responded to controllable environments is by cooperating with one another. *K-selected* individuals tend to prefer and form cooperative, longstanding relationships with each other. To facilitate these cooperative partnerships, they develop many traits that reduce violence and aggression (Figueredo et al., 2018), such as executive control, obedience to social rules, and reduced psychopathy. They also possess traits that facilitate the formation of cooperative social bonds, such as emotional intelligence.

R-selected individuals, on the other hand, were less able to reduce their extrinsic mortality risk (e.g. death by infectious disease) through cooperative social partnerships. Instead, they are more likely to view their fellow social partners as competitors, or as antagonistic to their own goals. *R-selected* individuals tend to be hostile, distrusting, and opportunistic in their social interactions (Figueredo et al., 2018). Because their children are also at an increased risk of dying by external forces, *r-selected* individuals err on the side of caution, by producing more children with more sexual partners, which enhances genetic diversity among offspring. To facilitate these reproductive goals, *r-selected* individuals are relatively open to casual sex, more willing to use violence and coercion to have sex, and do not develop strong emotional attachments to their sexual partners (Gladden, Sisco, & Figueredo, 2008).

The opposing life history strategies have thus contributed to the variation in personality dispositions among humans. Indeed, traits related to these strategies, such as age of reproduction, number of children, executive control, future-oriented thinking, cooperativeness, etc., tend to cluster together within people. Furthermore, these traits are highly heritable; about 65% of the variation among individuals in these overall clusters of traits can be attributed to genetic influence (Figueredo, Vásquez, Brumbach, & Schneider, 2004). This high level of genetic influence indicates that these traits have been selected for over the course of human evolution (Figueredo & Rushton, 2009). Finally, consider that, at their extremes, these life history strategies correspond to differing levels of the Big Five traits. In general, a *k*/slow life history strategy corresponds to higher openness, conscientiousness, extraversion, and agreeableness, but lower levels of neuroticism. A *r*/fast life history strategy, which is characterized by an antisocial schema, is associated with the opposite pattern: lower levels of openness, conscientiousness, extraversion, agreeableness, and higher levels of neuroticism.

See Also

Adler Individual Psychology
David Buss
Delay of Gratification
Ego control/Ego Resiliency Theory (ARCH)

Gender Differences/Evolutionary
Health and Personality
Heritability
Obsessive-Compulsive Personality Disorder
Psychopathy
Robert Hogan

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Psychoticism

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Most dictionaries dismiss the entry of "psychoticism" and list it under the psychotic entry as "the state of being psychotic." While this is correct there is so much more that can be said about this term.

While compiling the Eysenck Personality Questionnaire (1978) measuring Extraversion (E) and Neuroticism (N) it became obvious that there was something more that needed adding to the description of a person's personality. This something was deemed a dimension somewhere between psychosis and psychopathy and probably a mixture of both.

However, the task of devising and validating this Psychoticism (P) dimension proved tricky to say the least. Why? For several reasons but mainly because of the nature of the psychological make up of this characteristic (H. J. Eysenck & S. B. G. Eysenck, 1976). While Extraverts are outgoing, sociable, and largely optimistic, Neurotics tend to be anxious and moody, so what were the hallmarks of psychotics or psychopaths?

The answer seemed to be that psychoticism involved endorsing Questionnaire items such as "Do you take much notice of what people think?", "Do you prefer to go your own way rather than act by the rules?" and "Would you take drugs which may have strange or dangerous effects?" In short, psychotics and psychopaths share an aloof independent personality which manifests itself depending on whether it is accompanied by high or low E or N, a brief description of which now follows.

High P low N people are not introspective and will neither care to talk about themselves or, if persuaded to, may well give you false information. This is partly because they do not know themselves at all well and partly because they are uncooperative enough to want to mislead you. They are able, full of drive but convinced they alone are right and others are wrong and this can be a useful frame of mind especially when they ARE right as in the case of genius scientists or artists with an "off beat" creativity which they will not let anyone talk them out of. They are solitary and have difficulties making relationships and there is often a history of casual sex, maybe divorces and a general aloofness.

The high P high N personality is quite different. Here there is guilt set up between the hostile, aggressive P behavior much regretted by the overly sensitive insightful N component.

Hence these people have vast interpersonal problems which disrupt their lives constantly perhaps causing them to seek solutions in drug and/or alcohol addictions. However, they manage to blame others, especially society, for their problems. Adding high E to the high P and high N personality can make for a truly antisocial type of person who likes litigating and may have a criminal record or acquire one in due course.

Interestingly, consider motivation in a hypothetical situation such as the one in which a motorist overtakes on a blind bend. The high E sensation seeker realizes the danger and welcomes the "rush of adrenaline" resulting. The high P scorer, however, would be unaware of the danger and never gives it a thought until it is too late!

There are an almost infinite number of combinations of personality scores but with P high the accent would always be on conflict with others, society, and within themselves. How this manifests itself depends on the other personality scores, intelligence, and possibly the surrounding circumstances.

It has long been noticed that highly creative artists do often display characteristics of psychoticism, even to the point sometimes of madness i.e. psychosis. A detailed discussion of this is given by Eysenck in his 1995 book on Genius. Perhaps those people who lack enough of the characteristic need to withstand criticism of teachers and peers i.e. psychoticism will never pursue their creativity. Or maybe true creativity needs the psychoticism ingredient to become manifested. In support of such considerations, Eysenck (1995) and Simonton (1999) noticed this interesting relationship between the continuum of creativity and psychoticism. Along the continuum of creativity, low levels of psychoticism were associated with an absence of creativity, but increased levels of psychoticism were associated with enhanced creativity.

Some professions clearly favor high P individuals, nursing is one as this needs a cold detached attitude albeit that it sometimes, unfortunately, combines with a cruel streak which the patients may suffer from. Surgeons too need to have that detachment. Active combatants in the Army need a steely attitude and high P indifference to possible harm to oneself or others in battle would be helpful if not essential. The independence of character in high P scorers may be responsible for the retention of original and creative approaches in Science or Art. It could be that their perseverance in spite of (or because of) strong opposition gives them an advantage over high E or high N people who could be predicted to submit to criticism and change their minds more readily.

So psychoticism can be defined by what other personality dimensions accompany it and whether it is an asset in an appropriate profession or a disaster in lifestyle and personal relationships.

See Also

Antisocial Personality Disorder
Extraversion
Neuroticism
Neuroticism, Personality Correlates of
Sensation Seeking

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Five Factor Model, Facets of

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Overview

Throughout the long history of personality research, experts have traditionally focused on singular traits that were relevant to the phenomenon under investigation. After over 100 years of focusing on hundreds of traits in an effort to explain many diverse behaviors, researchers eventually realized that a lack of focus and common understanding regarding the makeup of one's personality was detrimental to the field and hindering progress toward using personality to explain behavior. Not only did this singular trait-focused approach to personality lack an overarching and agreed upon framework to understand what made humans who they are and different from one another, but it led to the study of many traits with similar conceptual definitions being called and treated as distinct aspects of an individual's personality.

In an attempt to consolidate the personality literature and to bring parsimony to the concept of personality, Costa and McCrae (1992) conceptualized the Five Factor Model (FFM). In general, they conceived the model as the entirety of an individual's personality. That is, the five factors together explained what made one person different from another, and could explain why people behaved in distinct ways without need for any additional traits or factor. The result was a new way of thinking about personality that encompassed all of the previously-examined traits within five distinct factors.

Five Factors

An often-used acronym for remembering the five factors is OCEAN. In that order, the factors are Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. Openness to Experience often points to those who are creative, open-minded, and intellectual. The opposite would be people who prefer to do things the way

they have always been done and would likely thrive in structured environments. Conscientious people tend to be very organized and responsible. They can be counted on and are known to see things through to the end. In contrast, those low in this factor are often unreliable and even irresponsible. Extraversion, the most popular of the five factors, represents a general tendency to be around other people and to prefer socialization over isolation. In contrast, a more Introverted person avoids large gatherings and is often exhausted after participating in social situations. Agreeableness points to a general tendency to go along with what others want and to avoid asserting oneself when doing so would be in contrast with others' thoughts or desires. Disagreeable people, however, almost prefer to argue their point and have no problem telling you what they think even if it means disagreeing with the beliefs or opinions of others. Finally, Neuroticism represents a general uneasiness and emotionality, especially in times of uncertainty. The opposite end of this continuum, Emotional Stability, is often used to characterize the factor and describes a person who is generally even-keeled and does not let much affect his/her feelings and emotions.

Facets

Perhaps as a result of attempts to fully define the factors of this model and to address questions concerning whether the model is missing important personality characteristics (e.g. a sixth factor), examination of the factors has led to identification of finer-grained components, typically called facets. Although researchers introduced these facets as a way of understanding the components of each factor, the focus of research has often remained on the general factors while neglecting the rich information gleaned from examining the facets. One reason for this is that, similar to times preceding the emergence of the five-factor structure when a plethora of different numbers and conceptualizations of personality factors resulted from early factor analyses, current research has yet to settle on a widely adopted taxonomy of personality facets from the FFM. Named facets vary according to researcher and, especially, according to personality measure.

Efforts toward a Taxonomy of Facets

Facets may be determined rationally by a consideration of the logical composition of a particular factor. However, due to different conceptualizations of the Big Five among researchers and measurement experts, the facets included in each also tend to differ. Factor analytic and other quantitative methods for determining facets are also often employed, but decisions regarding rotation of factors and subjectivity of interpretation remain even in these empirical methods. Therefore, varying numbers and labels of facets exist for each of the five factors. For example, the NEO-PI-R (Costa & McCrae, 1992), probably the most commonly used set of facets, includes 30 facets, whereas Woods and Anderson (2016) developed a list of 26 facets. Additionally, a Warmth facet may be considered part of the Extraversion factor (Costa & McCrae, 1992) or part of Agreeableness (Saucier & Ostendorf, 1999; Woods & Anderson, 2016), depending on the author.

The core of the problem is that each facet, like any factor, can be defined narrowly or broadly and this decision will affect the precision of its measurement and the ability to understand each facet's nature (Soto & John, 2017). Additionally, such decisions will influence convergence with other personality factors or facets and the predictability of behaviors. Much research has shown that convergence of factors across measures may be affected by these conceptual differences (e.g. Pace & Brannick, 2010). As such, currently labeled facets of the same trait may also covary only moderately, when they theoretically should be quite closely related.

Facet-Level Differences in Heritability, Development, and Prediction

Despite the disagreement among scholars, the usefulness of these facets is important to understand. Owing to the unique information added by each, facets allow for enhanced prediction of behavior and important outcomes, beyond the factor level (e.g. Paunonen & Ashton, 2001; Samuel & Widiger, 2008). For example, Reynolds & Clark (2001) found superior predictive ability of personality disorder ratings when using facets of the FFM rather than the domain-level scales. Similarly, work performance dimensions are predicted differentially by individual facets from the same domain scales (Judge, Rodell, Klinger, Simon, & Crawford, 2013).

In fact, it appears that a full understanding of personality development requires examination at the facet level of traits due to variations in age-related changes across facets of the same trait (Soto & John, 2012). Research has shown that heritability also differs by facet (Jang, Livesley, & Vernon, 1996). This is especially true across facets of conscientiousness, revealing a need for differentiation at the facet level when determining genetic vs. environmental effects on personality as well as behavioral outcomes from personality.

Measuring Facets

Due to limitations of time, many five-factor measures do not allow for the measurement of the lower-order facets. However, a large number of measures of FFM factors exist (see Widiger & Trull, 1997, for some comparisons). Many five-factor model measures include sets of facets for each factor (e.g. BFI-2; Soto & John, 2017). Furthermore, many other scales and traits can be classified into facets of the NEO PI-R (e.g. see Appendix A of Judge, Rodell, Klinger, Simon, & Crawford, 2013). Until a consensus exists on how many facets exist and what each of them is, one can only use theory to determine the facets relevant to one's own research and to measure or categorize them effectively.

Future Research

Regardless of the amount of research that has focused on specifying facet-level content of the FFM, more must be done to arrive at a broadly adopted taxonomy of facets. In addition, some still contend that not all personality descriptors are subsumed in the FFM

model and that large gaps in personality coverage, both lexically and in assessment, may exist. For example, there may be clusters of personality-related adjectives that do not seem to be part of the FFM (Saucier & Goldberg, 1998). Perhaps additional research into facets and corresponding modifications to descriptions of each factor will help to resolve this issue of classification.

Following lexical research using circumplex models, it appears that some personality sectors are not well represented by descriptors (Hofstee, De Raad, & Goldberg, 1992). This limits our ability to measure such gaps. Whether these gaps can be considered particularly important to society and research efforts remains a question to be further addressed. Woods and Anderson (2016) proposed personality researchers examine these gaps, attempt to measure these areas, and determine whether they might help to predict work-related criteria. This challenge for better understanding and prediction needs not be limited to work-related criteria, of course. As a field, personality researchers should work together to agree on the conceptualization and measurement of individual differences. Facets provide a very promising way to accomplish this important goal.

See Also

Adler Individual Psychology
Agreeableness
Conscientiousness
Extraversion
Extraversion, Personality Correlates of
Lewis Goldberg
Openness
Paul T. Costa, Jr.
Revised NEO-Personality Inventory (NEO-PI-R)
Robert McCrae

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Gender Differences in Personality, Evolutionary Perspective on

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The evolutionary perspective explores the idea of personality as evolved, inherited psychological mechanisms that propagate in response to problems of survival and reproduction faced by our ancestors. These mechanisms interact with sociocultural, physiological, and ecological external stimuli to manifest behavior that we define as character traits or personality. Grounded in the theory of natural selection (Darwin, 1871), the evolutionary perspective conceives that organisms best suited to their environment will go on to survive and reproduce, and through evolution, their genes will proliferate and become the norm. A process of natural selection known as sexual selection describes how personality differences between men and women are expressions of adaptations that emerged from successful mating. Sexual selections include intra-sexual selection, where pressure is exerted within one sex via competition to demonstrate preferred mating characteristics, and epigamic selection, where one sex will exert influence over the other sex by choosing partners with those specific characteristics.

Human Mating Behaviors

Human mating behaviors can be understood temporally as short-term and long-term mating behaviors.

Short-Term Mating Behaviors

Sexual strategies theory (SST; Buss & Schmitt, 1993) describes how sex-distinct behaviors evolved as a result of male and female ancestors having to solve separate adaptive issues in survival and reproduction. Thus, differences in personalities can be understood in terms of the biological sex interacting with the temporal duration of mating for each sex. Take parental investment for example. In women, reproduction incurs an enormous price (i.e. the female

egg is larger and metabolically costlier to produce than the male sperm; fertility is cyclical and age-graded leaving a limited time window for childbirth; carrying offspring for nine months and caring for her child for several years post-birth). In stark contrast, producing offspring is less costly for men (i.e. larger supplies of sperm; can invest less energy in rearing their offspring; larger time window to father children). However, men additionally face the unique problem of paternal uncertainty due to internal female fertilization. SST predicts that gender contrasts in personality traits depends on how each sex interacts with short-term sexual encounters (e.g. temporary affairs, and casual sexual encounters), long-term relationships (e.g. continuing commitment and potential bi-parental investment in children), and how each gender resolves the goals of each type of partnership (cf. Buss & Schmitt, 2016).

Similar to SST, parental investment theory (PIT; Trivers, 1972) states that the more an organism must invest in parental care, the more selective they will be when choosing potential mates. Women are therefore hypothesized to show more hesitancy toward casual sex as they have more parental investment compared with men. Should they engage in a short-term encounter, their priorities would be to secure immediate resources and identify good genes. Contrastingly, the mating opportunity costs hypothesis (Buss, 2015) states that any time invested in parenting is a lost opportunity to mate. Thus, men may bear greater mating opportunity costs, as they could be using the time taking care of their offspring instead of impregnating other females, thereby propagating their genes. In short-term mating, the theory predicts that men, unlike women, will display competitive personalities toward other males (i.e. aggression) in order to secure women. Men's focus will be on increasing partners, minimizing commitment, and identifying sexually accessible women (Buss & Schmitt, 2016).

Long-Term Mating Behaviors

Gender differences are also evident in long-term mating behaviors. Men and women in long-term relationships are thought to resolve many problems of survival and reproduction leveraging on a bi-parental support system that guarantees the survival of their offspring as described by attachment fertility theory (Miller, Pedersen, & Putcha-Bhagavatula, 2005). Based on such a system, men could guarantee greater paternal certainty and women could count on consistent support and resources. Problems with long-term mating were encountered by both genders (e.g. being able to identify a committed partner who is also a good parent), leading to personality traits such as a proclivity toward falling in love or being selective in their mates to develop in both genders, as noted by gender similarities hypothesis (GSH; Hyde, 2005). Although the goals of long-term and short-term mating differ, this notion does not discount the predictions made by SST. The issues of asymmetric parental investment and parental uncertainty still would have persisted in long-term mating, and thus are thought to have still led to sexually differentiated personality traits (Buss, 2015).

Human Sexual Behavior

Human sexual behavior as defined by any activity that induces sexual arousal in solitary, between two persons, or in a group, can be understood through the evolutionary perspective. Gender differences in sexual behavior have been well replicated (Peplau, 2003). Women

self-report desiring fewer sexual partners, taking more time before consenting to sex, being less willing to engage in sex (Buss & Schmitt, 1993), and having a tendency to underestimate men's potential interest in them. Men, on the other hand, report having more sexual fantasies and fantasies involving multiple sexual partners, state a greater attraction toward sexual variety, visit prostitutes more often, and have more extramarital affairs (Buss, 2015), overestimate interest from the opposite sex (Haselton, Nettle, & Andrews, 2015) and compared to women, masturbate more often and earlier in development, which reflects a higher sex drive (Oliver & Hyde, 1993). Finally, when selecting short-term mates, women gravitate toward men with highly masculine looks and displays of resources (e.g. money, status), while men are willing to dramatically lower their standards for casual sex.

Contrastingly, love, romance, and attachment styles do not tend to differ substantially across genders, noted by the GSH. However, men do report falling in love quicker, experience more instances of "love at first sight," and score higher on scales of romanticism compared to women. Conversely, women report being more careful with whom they fall in love with, slower to feel romantically passionate, and more likely to limit their feelings of love to partners who display abilities to provide and protect (i.e. having higher status, intelligence, and resources) (Kenrick et al., 2004). These findings are consistent with SST, which predicts women to be more cautious, and men to be more open with regards to sexual relationships.

Mate Retention Strategies

After successfully establishing a long-term relationship with a desirable partner, one must successful retain their mate. Several sex-specific differences are seen and can be understood through the literature on aggression, jealousy, and parental care.

Aggression

Males have consistently been found to be more aggressive and violent than females, a finding that is replicated in young adolescents and adults. Evolutionarily, males have had to compete with other males for resources, compete for viable fertile mates, and deter sexual infidelity whenever possible. Such competitiveness is evident in young children (Wölfer & Hewstone, 2015). Biologically, men tend to have a shorter index to ring-finger (i.e. 2D:4D ratio) than women, which reflects higher prenatal testosterone levels or greater sensitivity to androgens or both when they were in the mother's womb (cf. Turanovic, Pratt, & Piquero, 2017). Men have also repeatedly been found to have lower resting heart rates than women, which is reflective of men being more of a "sensation seeker" who engages in more antisocial behaviors.

Jealousy

Evolutionarily, jealousy is an important emotional response to deter potential threats to a partnership (e.g. partner infidelity and/or abandonment, mate poaching). While both genders report experiencing jealousy in similar frequencies and intensities, the types of infidelity that provoke maximum feelings of betrayal differ by gender and are those based

on paternal uncertainty. For example, men report greater distress and physiological stress response toward female sexual infidelity, where they risk raising a genetically unrelated child; while women experience the same effect with regard to emotional infidelity, which may lead to partner abandonment and a loss of long-term resources and support toward both her and her offspring. Women may also use other strategies including enhancing their physical appearance to play on men's tendency to seek youthful attractive mates, or purposely induce jealousy in their partners by flirting with members of the opposite sex in order to test their partner's commitment. Alternatively, men are more likely to employ strategies such as displaying resources (e.g. buying gifts), concealing partners when other males are present (e.g. spending all day with partner), submitting to their mate's wishes, and using aggression and violence against any male threats. These findings have most recently been corroborated by cognitive tests (e.g. information search, memory for cues to sexual vs emotional infidelity), physiological measures (e.g. muscle movement) and neuroimaging studies (Buss, 2015).

Parental Care

Gender differences in confidently establishing paternal certainty have said to lead to divergence in personality traits related to parental care. Evolutionarily compared to men, women as the primary caregiver have developed personality traits including empathy, nurturance, and infant facial recognition that are necessarily for the survival of their offspring, as indicated by the primary caretaker hypothesis (Babchuk, Hames, & Thompson, 1985). Under stress, women are more likely to "tend" and soothe offspring and "befriend" members of their social group for mutual defense (Taylor et al., 2000) rather than engage in the adrenaline-based fight-or-flight response in men. Together, these gender-specific personalities have been evolutionarily advantageous for the survival of human offspring.

Evaluation of Evolutionary Perspective of Personality

A summary of some of the strengths and limitations associated with the evolutionary perspective of personality includes the following: crucial in formulating testable hypotheses regarding gender differences, most of which have been confirmed over the years (Buss & Schmitt, 2011). Many reported personality differences have been cross-cultural, thus strengthening the case for their evolutionary heritage (Buss, 2015).

Limitations

It is important to take into consideration the effect sizes of reported differences between men and women. A metasynthesis study of 106 meta-analytic studies on gender differences found only a small effect size for personality differences (d=0.22, ~84% overlap between men and women) (Zell, Krizan, & Teeter, 2015). This highlights greater similarities between the genders than differences. Most findings rely on self-reports which inflate the relationships between constructs; however, studies using other types of testing

(e.g. cognitive, genetics neuroimaging, network analysis) are emerging and corroborate with the original findings.

Conclusion

The evolutionary perspective provides a fundamental understanding and testable framework of the role of gender across a range of behaviors and how it translates to our understanding of personality. This area of research recognizes both differences between genders, but importantly, the similarities as well. However, future studies are still needed before any definitive conclusions regarding gender differences can be made, through triangulating multiple methods, cross-cultural studies, and large population studies.

See Also

David Buss
Evolutionary Theory and Personality Correlates of Mate Selection
Evolutionary Theory of Personality
Gender Differences in Perceived Personality Traits of Men and Women
Gender Identity

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Contemporary Theories of Gender Identity

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Gender is one of the main axes that guide individuals' place in society, as many interpret and develop their psychological experience in reference to their "womanhood" or "manhood." Both in academic and activist spheres, gender identity is a very important concept that carries decades of thought, debate, research, and practice.

Even nowadays there are plenty of definitions to choose from regarding the concept of gender and others related to it (see Pilcher & Whelehan, 2004 for definitions of essential concepts). The concepts of sex and gender are two that often get mixed up, although there are some key differences between the two. "Sex" refers to the individual's biological sex, such that one is either male or female, in most cases. If this does not happen, when a child is born with ambiguous genitalia, such a child is deemed "intersex" and usually undergoes surgery as an infant to "correct" the situation (there have been campaigns against this in recent years). "Gender," on the other hand, is a culturally charged concept, consisting of the psychological attributes that have been associated in a particular culture with each sex. Although most people think that sex and gender are usually highly correlated, this is not the case; it is not difficult to find a woman that displays psychological features typically associated with men and vice-versa.

Gender identity derives from this last construct, referring to the general sense of belonging to either the masculine gender or the feminine gender and is tied to what it means for a certain culture to be feminine or masculine. Other concepts that usually are mistaken for gender identity are gender roles and gender role attitudes. Gender roles refer to the roles and activities individuals of a certain gender should partake in, according to their culture. Gender role attitudes, on the other hand, consist of the individual's beliefs about the roles and activities for men and women.

Through the evolution and diversity of theory in this domain, the very meaning of gender changed throughout the years. Notably, while initially a biological essentialism dominated that equated sex to gender, contemporary perspectives tend to view gender as a

learned and dynamic dimension of one's identity, increasingly focusing on the cultural influences on its development.

Such is the case of Gender Schema Theory (Bem, 1981), which proposes that children learn the behaviors and personality traits that are linked with either sex (female or male) through socialization, thus creating a network of sex-related associations, or a gender schema. This schema, like all others, is later activated in certain situations to facilitate information processing. The self-concept itself is assimilated into the gender schema, as children learn the attributes that their sex (and thus themselves) should possess. Bem (1981) refers to a schematic selectivity, through which certain attributes are applicable only to one of the two sexes (e.g. "nurturing" is an attribute only applicable to females and "strong" is only applicable to males), making them different not only in degree, but also in kind.

Identity in this perspective follows from the discovery of one's gender that inevitably leads to a self-evaluation in reference to a gender schema, to determine the adequacy of the self in terms of the self's femininity or masculinity, which may affect the individual's self-esteem. Then, the individual may attempt to match their preferences, behaviors, and attributes to those that the gender schema prescribes as being associated with the individual's sex. As such, sex-typed individuals organize their self-concept and behavior around gender, despite how much femininity or masculinity they possess.

This is, thus, a theory of process, focusing on the process of dividing and interpreting the world in terms of two classes contained in the gender schema. Accordingly, the Bem Sex-Role Inventory (BSRI; Bem, 1974) treats masculinity and femininity as two independent dimensions, thus measuring them both with 20 items (personality traits) each. Another 20 filler items are present, leading to a total of 60 items. This inventory allows the classification of individuals as either sex-typed, if the score difference between the masculinity and femininity scale is high, or androgynous if that difference is low.

Ultimately, a sex-typed individual can be either feminine or masculine, depending on which scale the score was highest. This operationalization has led to criticism, as Spence (1985) points out that equaling femininity with expressiveness and masculinity with instrumentality is a theoretical inference that lacks empirical evidence, such that their diagnostic capability is much narrower than Bem claims. It is also a culturally biased view that tends to place gender along a continuum with two extremes, upon which a binary categorization is made that presupposes a certain degree of stability of gender.

In fact, it is noticeable in contemporary perspectives that overcoming the essentialism regarding the formation and nature of gender identity has not meant a reduced importance of its conceptualized stability. Such is the case of the Cognitive-Developmental Theory advanced by Kohlberg (1966), which focuses on the development of the cognitive structures that allow children to attain gender constancy, the knowledge that gender does not change over time. There are three stages in this process (Slaby & Frey, 1975): (1) development of the understanding that one is either a boy or a girl (gender identity), (2) the development of the understanding that this identity does not change over time (gender stability), and (3) the development of the understanding that this identity is not affected by gendered activities or traits (gender consistency).

Throughout this process, children play an active part in constructing the knowledge they possess about gender categories, with a significant impact on their behavior, attitudes, and conformity to gender norms (Kohlberg, 1966). These gender-related behaviors and beliefs

become progressively more rigid (e.g. only girls can wear skirts) until a certain threshold, from which they become more flexible (e.g. both sexes can be whatever they want when they grow up). However, an exact estimation has yet to be made about the precise pinpointing of such threshold, while it cannot be denied in this view that the developing understanding of their gender identity has motivational significance for children.

Other aspects that need to be better defined with empirical evidence consist of the timing and process through which the acquisition of information on gender categories, especially the one the individual belongs to, affects gender-related behavior and attitudes. The Multifactorial Gender Identity Theory (Spence, 1985, 1993) may shed some light on these aspects, while simultaneously showing some promise regarding the tendency of previous perspectives to build upon the binary.

The theory suggests that gender identity derives from multiple gender-related phenomena associated with each other. These phenomena comprise: (1) a global sense of femininity or masculinity, (2) gendered traits (e.g. expressiveness and instrumentality for women and men, respectively), (3) sex roles, attitudes, and attributes, and (4) sexual orientation (Spence & Sawin, 1985). The measurement of each phenomenon must be done separately. Each phenomenon has its own developmental path that differs across individuals and is affected by multiple factors that may or may not be related to gender (Spence, 1985, 1993). These factors and the interaction between them will determine which sex-typed characteristics an individual will develop.

As such, within each gender there is some variability in which gender-congruent qualities are displayed, although that usually does not compromise the often-clear sense of belonging to their own sex an individual has. Thus, a gender identity is developed that remains throughout their life, becoming a fundamental part of the individual's self-image, such that any incongruences (not possessing a stereotypical gender attribute of their own sex or possessing one of the opposite sex) are discounted. While considering the overlooked concept of summary self-perceived gender typicality, Egan and Perry (2001) developed a self-report questionnaire with 10 scales, one of which taps into gender compatibility, a construct that comprises both self-perceived gender typicality and gender contentedness.

While the multifactorial perspective has shown a greater conceptual precision regarding the complexity and dynamics of gender identity formation, to this point gender itself has not been questioned. Contemporarily, the most recent perspectives have marked the paradigm shift from cognitive-developmental perspectives toward a post-structuralist and deconstructionist view that denounces gender as a social artifact. Such is the case of Judith Butler's contribution, a philosopher and a feminist theorist, that set forth the Theory of Performativity (Butler, 1988, 1990). Butler questions the traditional view of gender identity as a stable essence of an individual, or even a developmental product achieved and maintained throughout the lifespan.

That is, one is not born male or female and these are not an immutable part of what defines the individual. Rather, gender is socially constructed through institutionalized actions and roles that are expected and repeated within – and as such, gender is imbued with a person's identity as they are socialized into repeating those same words and actions to fulfill the expectations of their gender, throughout their development. For instance, one is not feminine, delicate, caring, and soft-spoken because of the content of one's genes, but because those are the actions and language patterns that are expected of a woman to be performed, in a specific socio-cultural context.

This perspective has at least two major implications for theory and practice. First, it conceptualizes gender as imbued with social temporality – gender is fulfilled in a specific historical, social, and political context, for which reason gender identity and expression varies across time and different cultures. Second, if gender is socially constructed and not an essence of the human being, it can be critically challenged as being an arbitrary set of iterations that can be rearranged or, ultimately, dropped. This is of particular importance because transforming gender is also acting upon the power structures that hold up a social hierarchy that maintains men in a socially advantaged position over women.

Finally, Butler's contribution can be understood as part of a broader contemporary perspective, Queer Theory, which is rooted in post-structuralism and deconstructionism and provides a critical outlook on interrelated concepts of sex, gender, and desire (Jagose, 1996), based on the work of Foucault (1978). Instead of analyzing how gender is integrated by individuals and shapes their identity, thus impacting on their lives through different psychological processes, post-structuralist views analyze how socially constructed discourses about gender influence individuals' development of the self-concept, impacting on the perpetuation of a specific status quo. A classic example analyzed by Queer perspectives is that of intersex people, and how the power invested in science and medicine has led to the compulsory intervention and reclassification of their bodies (e.g. Butler, 2004; Fausto-Sterling, 2000).

There is still much to be learned concerning gender identity, indeed. The age of identification with a gender is still not known as well as the influence of social, biological, and cognitive factors on its development. The study of this process on intersex children has also been in need of attention. Finally, the integration of the current theories into a broad one, that considers not only purely intra-individual factors but also social and cultural ones on the development of a gender identity seems to be of the utmost importance, in order not to naively reproduce and perpetuate certain patterns of power relations.

See Also

Alexithymia
Core Self-evaluation
Gender Differences/Evolutionary
Gender Differences in Aggression
Gender Differences in Perceived Personality Traits of Men and Women
Gender Differences in Self-esteem and Self-confidence
Gender Differences in Subjective Well-being
Salvatore R. Maddi
Schemas, Theory of
Schizoid Personality Disorder
Schizotypal Personality Disorder
Self-consciousness, Assessment of
Self-construal
Social Construction Models

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Gene-environment Interaction

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The term "nature versus nurture" refers to the interaction between one's genes ("nature") and the environment in which one lives ("nurture") in shaping a person's development and change across their lifespan. Whilst it is acknowledged that people are shaped by their genes and environment, the degree to which each affects various outcomes is not entirely known.

Our genome sets in place the architecture of how we will develop, with genes often referred to as the building blocks of the body. Whilst almost all humans have close to identical genomic sequences, there is some subtle variation. These variations in genes can affect gene expression, such as causing the gene's product to function differently, or to produce more or less of its product.

The "environment" in gene-environment interaction is any non-genetic factor that can cause an outcome. Environmental factors include diet, behavior, exposure to radiation or chemicals, family size, or educational attainment.

These differences in gene expression and environmental factors can result in different phenotypes, which are the expressed characteristic or outcome. Examples of phenotypes include height, weight, hair color, behavior traits, and disease states.

If looking at cancer as a phenotype, we can look at its cause from a genetic or environmental factor. For instance, people with parents who both developed cancer have an increased genetic risk of developing cancer themselves. Yet not all people who carry cancer-related risk alleles develop cancer. Regular smoking is an environmental risk factor for developing cancer, yet not all smokers develop cancer. However, people with an increased genetic risk of developing cancer may be warned to avoid smoking due to the environmental risk that it poses. The combination of increased genetic risk and engaging in behaviors that increase risk may further increase the risk of developing cancer. This example highlights another possible pathway of phenotypic variation that is the gene-environment interaction.

So, while our genetic code provides the template, there are still ways to modify phenotypes through environmental exposure. Across our lifetime the opportunity to make changes remains open for many outcomes. Phenotypes that are under the influence of

gene-environment interactions include tangible phenotypes, such as weight or height, and intangible phenotypes, such as intelligence.

The gene-environment interaction has been widely researched for a range of outcomes. Outcomes such as diseases and medical conditions are generally investigated in terms of presence or absence of disease or signs and symptoms. Those that are generally measured on a continuum rather than presence or absence of trait, such as behavioral or psychological traits, are more difficult to assess unless they are well-defined and conceptualized.

Pedigree, family, and twin design studies have not only demonstrated the heritability of phenotypes, such as intelligence, but also the impact of shared and non-shared exposure to environmental factors on these phenotypes. However, these kinds of studies are unable to identify the genes that may be involved. The development of whole genome sequencing has allowed for the identification of genes, and genome-wide association studies (GWAS) can determine which genes may be behind these phenotypes. Millions of single nucleotide polymorphisms (SNPs) can be sequenced in unrelated individuals, and genetic differences between individuals taken as plausible causes for phenotypic variation. However, variance explained by genotype tends to be low compared to family studies. This gives further credence to the effect that the environment can have on phenotypes.

There are challenges when researching gene-environment interactions on phenotypes. Methodological differences between studies make comparisons difficult, and reproducibility of results is a huge hurdle to overcome in research. Measures may insufficiently capture the environmental factor, or the way the factor was assessed is difficult to replicate. It is also difficult to determine what kind of information is relevant, or how many environmental or genetic factors to take into account. For instance, research suggests that people may be affected by their prenatal environment, from developmental to further ongoing issues later in life. It may also be the case where environmental factors can magnify, nullify, or generally modify phenotypes. Additionally, many factors can be classed as both a phenotype and an environmental factor (e.g. smoking status, educational attainment). Statistical analysis of gene-environment interactions may not appropriately control for potential confounding variables that further affect the interaction (Keller, 2014). With genome-wide association studies, there is a risk of Type I error due to multiple comparisons, so large sample sizes are required. Yet while significant effects may be found as a consequence of increased sample size, the effect of any single SNP allele is small which brings up questions of utility unless SNPs are looked at in functional groups. While GWAS looks at common gene variants, it may be more useful to look into rare variants as they may have a greater impact on phenotypes. Additionally, non-coding regions of DNA are often overlooked, however these may prove just as useful since these include important regions that have actions such as promoter or excision of the genes that follow these regions. There is also the added difficulty of gene-gene interactions and epigenetics. Missing heritability could be partly explained by epigenetics (Ober & Vercelli, 2011), which may give more detail into the biological mechanisms that drive the outcome outside of changes to genetic coding. However, it is even more challenging to research the dynamic interplay between genotype and environmental factors.

Only through increased research can the complexity of gene-environment interactions be more fully understood. With psychological and behavioral traits in particular, there is a need for more collaboration between geneticists, psychologists, and biostatisticians to develop new ways of investigating this field of research.

See Also

Behavioral Genetics
General Features and Methodological Issues
Genetic Bases of Personality

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Goldberg vs Costa/McCrae Five Factors

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For over 50 years, psychologists have been interested in the construct of personality in order to model which traits people possess and how these are related to variation in domains such as behavior, culture, and well-being. There are two specific models of trait personality that have propelled much of the debate over which are the primary personality factors: Costa and McCrae's model and Goldberg's model. Both center around the idea that five orthogonal personality traits serve as overarching stable dimensions of personality. Nevertheless, they differ in their factor names and the length of each scale item, as well as in the methods by which they were validated, which is considered the primary difference.

Though conceptually similar, one minor difference between these models is the somewhat different naming. Intellect (Goldberg) or Openness to experience (Costa/McCrae) describes people that tend to be intellectually curious and willing to try new things. Conscientious individuals are those that tend to be careful and responsible. Extraverted people tend to be social and outgoing. Agreeableness describes people that are sociable and easy-going. Finally, Neuroticism (Costa/McCrae) or low Emotional Stability (Goldberg) captures the extent to which people tend to be tense and moody or calm and collected.

These five factors were first identified by Donald Fiske in 1949 using data collected by Raymond Cattell. Cattell examined 4,500 English terms that described stable personality traits. Cattell condensed the terms down to 35 clusters of related terms and created rating scales using these clusters, allowing him to examine the correlations of the factors across a number of contexts. He claimed to have found more than a dozen stable personality factors; however, when a more nuanced statistical technique was applied (i.e., orthogonal rotational methods) by Fiske in 1949, a five-factor structure emerged. The lexical hypothesis approach to personality described above assumes that our usage of language will reflect fundamental personality factors. This lexical model was replicated and extended by Lewis Goldberg in 1990. Thus, Goldberg became an advocate for the "Big Five" model using the lexical hypothesis over any potential alternative methods of validation. Critics of

the lexical hypothesis claimed that single words are unable to capture the complexity of human personality and that this approach may yield a simplistic view of personality.

To address these issues, Robert McCrae and Paul Costa developed a second model of trait personality, the "Five Factor Model" (FFM), by comparing the correlations between the factor structure of an 80-item adjective rating task and the ratings on the NEO-Personality Inventory (NEO-PI; McCrae & Costa, 1987). One big difference between the models is the operationalization of the factors: Costa and McCrae used the NEO-Personality Inventory, which originally included Neuroticism, Extroversion, and Openness and later incorporated Agreeableness and Conscientiousness. In addition to the method of validation, the models differ on how the personality factors are operationalized (e.g., warmth is associated with extraversion in the Costa and McCrae model, while it is associated with agreeableness in Goldberg's model) and how they are perceived as interacting with one another (i.e. Goldberg's model does not assume a hierarchical structure to the five factors, whereas Costa and McCrae's does).

The NEO-inventory assesses personality using longer, similarly oriented sentences as items, whereas Goldberg advocated for the single-word-adjective-item approach. Costa and McCrae have found that there is significant overlap when people are asked to rate someone using either single word adjectives or the longer NEO items. In this case, the two models can be viewed as more complementary to one another than in opposition. Critics of these models point to the lack of a theoretical framework underlying the factors. Nevertheless, these models have been foundational to other theoretical frameworks, such as Hogan's socio-analytic theory (Hogan, 1982). Notably, the NEO-PI-R (i.e., the revised NEO-PI) is one of the most prevalent measures used across a number of contexts, including across cultures and to assess abnormal personality traits.

The Big Five and Five Factor Model have proved robust, valid, and reliable, as evidenced by the varied and myriad work that uses these scales and models today. For instance, it has been proposed that trait models of personality may be useful in the classification of maladaptive personality disorders (Krueger, Derringer, Markon, Watson, & Skodol, 2012; Samuel & Widiger, 2008; Thomas et al., 2013). The Five Factor Model has been used to help construct the personality disorders defined in the DSM-V (Krueger & Markon, 2014). Likewise, the PID-5, an inventory used to score the maladaptive personality traits within the DSM-V, has been used to validate the FFM and its application in diagnosing psychopathology (De Fruyt et al., 2013; Thomas et al., 2013). By comparing inventories that measure the five factors of personality and the maladaptive personality factors intended to measure DSM personality disorders, De Fruyt and colleagues (2013) found that both inventories encompass the five factors derived from the FFM.

In addition to aiding in the classification of psychopathology, current trait models of personality have been modified from their original framework in an attempt to bridge the gap between personality psychology and neuroscience. Specifically, recent research has continued to Goldberg's (1999) identification of second-order aspects and third-order facets within the Five Factor Model, allowing for a more thorough investigation of the biological foundations of personality (Allen & DeYoung, 2016; DeYoung, Quilty, & Peterson, 2007).

The five factors appear to be related to brain area volume and white matter integrity in specific regions of the brain (DeYoung et al., 2010; Xu & Potenza, 2012). Specifically, Extraversion correlated with the size of reward information processing regions of the brain

(the medial orbitofrontal cortex); Neuroticism with that of brain areas responsible for negative emotion and the detection of threat and punishment (the right dorsomedial prefrontal cortex and the left medial temporal lobe); Agreeableness with that of brain areas associated with theory of mind (the posterior cingulate cortex and fusiform gyrus); Conscientiousness with brain regions associated with higher cognitive functions such as planning and executive functions (the lateral PFC and middle frontal gyrus); and Openness/Intellect with the right parietal cortex (known for regulating functions such as attention and memory).

With respect to cross-cultural personality research, contradicting results have emerged when personality traits and model structures are compared across multiple cultures (McCrae & Terracciano, 2005; Schmitt, Allik, McCrae, & Benet-Martínez, 2007). For example, McCrae and Terracciano (2005) demonstrated that the Big Five factors mapped onto personalities across 50 cultures. In contrast, Schmitt and colleagues (2007) found significant world region effects for all five personality traits using the Big Five Inventory (BFI). Extraversion was relatively lower in South America, East Asia, and Southeast Asia. Agreeableness and Conscientiousness scores were relatively higher in Africa and lower in East Asia, whereas Neuroticism scores were comparatively lower in Africa and higher in East Asia, South America, and Southern Europe. Openness scores were higher in South America and lower in East Asia and Africa. Likewise, less developed societies such as the Tsimane, a forager group located in Bolivia, show personality structures that drastically differ from those of developed societies (Gurven et al., 2013). Hence, personality traits and their levels may vary significantly from region to region.

In summary, the Big Five and the Five Factor Model proffer five personality factors that are usually referred to as Openness, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The debate does focus on the number of useful personality factors but rather which method of validation yields the most accurate understanding of personality. These models differ in three ways, the first two of which can be understood as more primary differences: (1) the former was developed via the lexical approach whereas the latter improved upon the prior model by using factor analytics, (2) the former uses single word descriptors while the latter uses sentences as scale items, and (3) their naming scheme. Neuroscience has identified neural correlates of the five factors, and cross-cultural research has underscored how people across the globe are both similar and different. Future research would benefit from clarifying cross-cultural patterns of *reporting* personality and by considering the nuanced differences in linguistic aspects of personality world-wide, two potential sources of the inconsistent international research.

See Also

Big Five
Cattell Trait Theory Lexical Analysis
Factor Analysis in Personality Research
FFM and Facets
Personality and Geography
Personality and Neuroscience [Brain Structure and Functioning]
Personality Psychology in Africa

Personality Psychology in Central and South America
Personality Psychology in China
Personality Psychology in Islamic Countries
Personality Psychology in Japan

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Grit

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Grit, a personality dimension related to conscientiousness, was first proposed as a unique trait by University of Pennsylvania researcher Angela Duckworth in her 2004 work with West Point Military Cadets to identify ideographic features of high achievers. This landmark study revealed two underlying factors that set apart those cadets who successfully completed their grueling summer-long training program (known as "The Beast"). Those factors were passion (sustained interest over a long period of time) and perseverance (the ability to overcome situations of adversity by being a hard worker). The development of the 12-item Grit Scale in 2004 marked the first systematic attempt to assess passion and perseverance as the underlying features of successful people. Duckworth, Peterson, Matthews, and Kelly (2007) noted that the Grit Scale administered to new West Point indoctrinees was a better predictor of cadet completion of the training program than the whole candidate score initially used to evaluate their application to West Point. Likewise, the authors found that the Grit Scale also predicted achievement across multiple domains.

For example, Duckworth, Peterson, Matthews, and Kelly (2007) found that in a sample of 139 college students, grit was a significant predictor of overall educational achievement (Grade Point Average), controlling for Standardized Achievement Test scores. A second study of 1,218 first-year West Point cadets revealed that grit predicted completion of the rigorous summer training program (the Beast) better than any other predictor. Candidates scoring one standard deviation higher on grit were 60% more likely to complete their summer training than were other cadets. Among 175 2005 Scripps National Spelling Bee finalists, grit and age were significant predictors of participation in the final round, although when verbal IQ was included in the equation, grit was no longer found to be a significant predictor of performance.

In a separate study, Duckworth (2016) described her findings for novice instructors working in disadvantaged schools through the Teach for America program. The authors found that more optimistic teachers tended to manifest higher levels of grit and had higher student achievement scores at the end of the year. She concluded that grit caused effective teachers to continue to search for ways to change their situation for the better, resulting in novel problem solving and higher levels of happiness.

In another multi-study paper, Eskreis-Winkler, Shulman, Beal, and Duckworth (2014) described how grit predicted retention over and above factors such as demographics, intelligence, aptitude, personality, and job tenure across multiple settings. A study of Army special operations forces revealed that, after controlling for intelligence and physical fitness, those ARSOF candidates who scored one standard deviation unit higher in grit had a 32% higher chance of completing their advanced training. Likewise, among 442 sales associates, after controlling for conscientiousness, weeks employed for the company, and years in sales, grit predicted retention among sales representatives better than any other variable. A third study of 4,813 Chicago public school children examined the role of grit in high school graduation. The authors found that after controlling for achievement test scores, conscientiousness, and situational factors, those students scoring one standard deviation unit higher in grit were 21% more likely to complete high school than their peers. Finally, a fourth (online) study of 6,362 adults examined the role of grit in marital longevity. The results indicated that higher grit had a role in relationship maintenance, but only for men, not women.

Definition of Grit

Duckworth (2009) proposed that grit was a personality trait that had its origins in the Big Five Factor of conscientiousness (McCrae & Costa, 1987), but could be cultivated through coaching and education. What is equally important to the definition and underlying factor structure of grit, however, is what sets grit apart from other similar constructs. Notably, grit is not talent per se, although many talented people demonstrate the traits of grit. Talent is an ability we are born with that often requires very little exertion of effort to perform. Duckworth (2016) explained that talent invested with effort results in skill. Skill invested with effort produces achievement. Effortful perseverance, which manifests in this equation two-fold, is one critical aspect of grit.

Grit has also been confused with resilience, or the ability to bounce back after failure or adversity. Although resilience, too, is an important feature in those who achieve greater success in life, grit is much more than a positive response in the face of adversity.

According to Eskreis-Winkler, Shulman, Beal, and Duckworth (2014), achievement is moderately positively correlated to the Big Five Factor conscientiousness, and its underlying facets of self-control, discipline, and low impulsivity. Logically, it might be expected then, that grit would also be related to conscientiousness. But unlike the Big Five Factor, grit describes stamina invested in particular interests and applied long-term effort toward the same higher-order goals. So, grit captures a level of passion not sufficiently reflected by the Big Five facet of conscientiousness.

Finally, grit has occasionally been confused with flow (a state of complete focus and concentration). Flow, unlike grit, however, is the spontaneous and effortless product of sustained practice.

The Grit Scale

Grit has been measured using the Grit Scale (Duckworth, Peterson, Matthews, & Kelly, 2007) a 12-item Likert-style measure that consists of two inter-related subscales assessing

passion and perseverance (r=.45). Subjects rate (on a scale of 1= "not at all like me" to 5= "very much like me") how they think they compare to most people on a series of items that address distractibility, work ethic, focus, diligence, and resilience. Scores range from 0–6 with less than .01% of the population achieving a perfect score. The scale demonstrates good internal consistency (alpha = .85) for the overall scale and for each factor (consistency of interests, alpha = .84 and perseverance of effort, alpha = .78). The measure has good criterion-related validity as a predictor of educational achievement and career consistency in a broad population.

Grit and Aging

Grit has been found to increase with age, so that people in their 60s manifest higher grit than those in their 20s. There are a couple of hypotheses to explain this phenomenon. On one hand, it is possible that grit is a generational effect of the cultural era in which we are raised. Perhaps those who are currently in their 60s endured greater adversity in their youth, which made them stronger and more persistent. Alternatively, our personalities may shift as we get older and we are thrust into new situations that call on us to behave differently, to be more resilient to change. Most likely, shifts in grit over time are the result of an interaction between cultural and individual variables that suggest grit is more plastic than many other personality traits.

Paragons of Grit

The qualitative study of those people who have been deemed fully self-actualized with respect to grit reveals some common characteristics. Duckworth (2016) notes that the four key assets that emerge in high achievers include *interest* or passion in what they do, *practice* and the daily discipline to devote one-self to mastery of a task, *purpose*, or the conviction that one's contributions matter, and *hope* to enable one to continue on when things get difficult. She further asserts that these characteristics are not innate but rather can be acquired through a growth orientation.

Etiology of Grit

The origins of grit are likely multifaceted. Although there is little evidence for a strong environmental basis for grit, there are certainly motivational orientations that seem to have moderate associations with the personality dimension. Specifically, Seligman's correlates of happiness in life – pleasure (hedonic pursuit of positive activity), meaning (engaging in activity that serves a higher, altruistic purpose), and engagement (attention-absorbing activity) – have been found to differentially predict passion and perseverance (Von Culin, Tsukayama, & Duckworth, 2014). Based upon two studies of adult participants in the general population, the authors concluded that pursuit of engagement and meaning were positively correlated to grit, while pursuit of pleasure was negatively correlated to grit. Results are described in order of significance.

The relationship between genetics and grit was examined in a large-scale twin study conducted by Rimfeld, Kovas, Dale, and Plomin (2016). The Grit Scale was administered to 2,321 identical twin pairs at the conclusion of their General Certificate of Secondary Education exams in the United Kingdom. According to the authors, twin analyses of the grit perseverance subscale yielded a heritability estimate of 37% and no evidence of shared environmental influence. Conscientiousness accounted for about 6% of the variance in final grades, and grit added little to the prediction above traditional personality factors. In fact, interest (measured by passion on the Grit Scale) did not predict academic achievement at all. Furthermore, multivariate twin analysis revealed that roughly two-thirds of school achievement was mediated genetically. They concluded that effort, as measured by the Grit Scale, was essentially phenotypically and genetically the same trait as the Big Five Factor conscientiousness.

The conclusion that non-shared environment factors did not predict achievement is in stark contrast to Duckworth's own (2016) assertion that grit can be nurtured through learned optimism or a growth mindset. According to this line of research, children can learn grit through appropriate modeling, coaching, and encouragement.

Perkins-Gough (2013) asserts that non-cognitive character traits, such as grit, may be as important to success as cognitive abilities. This perspective represents a significant swing from the past focus on achievement in schools to a renewed interest in the whole child. Such recent educational reform is represented by a model project in the Upper Darby School District of Pennsylvania, conducted in consult with Angela Duckworth, and intended to increase resilience among the district's 12,400 diverse students. Likewise, companies such as JP Morgan Chase and the Seattle Seahawks franchise have sought to build a culture of grit among employees in order to enhance corporate resilience and achievement.

Just as grit can be fostered in schools and corporations, Duckworth (2016) asserts that grit can be communicated through a balance of supportive and demanding parenting. What Duckworth terms "wise parenting," commonly known as an authoritative parenting style, has been found to produce children who earn higher grades, are more self-reliant, suffer from less anxiety and depression, and are less likely to engage in delinquency. In sum, supportive-respectful parents are more likely to raise children higher in the trait of grit, which leads to greater success as adults.

See also

Big Five
Persistence, Personality Correlates

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Hedonic Adaptation

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Imagine the excitement you might feel bringing home a new puppy. At first, your puppy is so cute and novel, you make excuses to go home early and play with her. You take pictures of her, take her for walks around the neighborhood, and show her off to friends. However, as time passes, the joy that was once connected with your puppy has slowly diminished. Similarly, if a beloved pet dies unexpectedly, the sadness associated with such a negative experience begins to fade over time. This phenomenon, where an individual's emotional response to positive and negative stimuli lessens with the passage of time, is known as hedonic adaptation or the hedonic treadmill (Frederick & Lowenstein, 1999). Hedonic adaptation involves the natural acclimation to both ongoing life experiences (e.g. being married to the love of one's life) and single life events (e.g. taking one's honeymoon). Hedonic adaptation has evolutionary advantages in that it allows individuals to focus on new stimuli or changes in their surroundings. Remaining in a heightened emotional state for a prolonged period of time, whether positive or negative, could overwhelm an individual and prevent healthy functioning. Hedonic adaptation brings people back to their baseline or pre-event levels of well-being.

The notion of a baseline or set point for one's well-being has a longstanding history in research about happiness (formally known as subjective well-being and shortened here to well-being). Set point theory suggests that a person's well-being – which includes both affective processes like positive and negative emotions, as well as cognitive processes like life satisfaction – stays relatively consistent over the lifespan. Although set points differ for each person and may temporarily increase or decrease due to changes in one's life (e.g. a person feels increased happiness at the start of a relationship or reduced happiness at the end of a relationship), eventually everyone is expected to return to their own personal set point. Evidence for the set point came from a classic study that compared the happiness of lottery winners to non-lottery winners and found no differences (Brickman, Coates, & Janoff-Bulman, 1978). Furthermore, early estimates suggested that life circumstances such as one's level of education, socio-economic status, and marital status accounted for less

than 3% of the variation in well-being (Lykken & Tellegen, 1996). This led researchers to posit that well-being does not change meaningfully over time. Such a conclusion has important implications for individuals who want to become happier – which includes most people – because it suggests that the pursuit of ever-greater happiness is not possible. However, more recent evidence suggests that the set point for well-being can in fact change, especially in the context of meaningful life events.

When individuals experience negative life events, well-being tends to decrease in the period surrounding the event and then rebound. For example, in a prospective longitudinal study, life satisfaction declined to the lowest level in the year preceding a divorce, but began to increase in the years following a divorce (Lucas, 2005). Notably, individuals did not return to their pre-divorce levels of satisfaction after five years, indicating that hedonic adaptation may not be complete after divorce and that the set point may be permanently altered. Similar findings are evident with the death of a spouse or the loss of a job whereby well-being plummets upon the death or job loss, but begins to rebound in the following years (Luhmann, Hofmann, Eid, & Lucas, 2012). Again, however, well-being does not fully recover to pre-event levels, even after several years. In another study, Hernandez and colleagues (2014) found that newly disabled individuals who were married and satisfied with their family life were buffered against the harmful effects of becoming disabled and reported greater life satisfaction over time compared to disabled individuals who were unmarried and dissatisfied with their family life. This suggests that well-being may rebound more quickly (and hedonic adaptation accelerates) when negative life experiences occur in a supportive context.

In contrast to negative life events, evidence for hedonic adaptation to positive life events suggests that adaptation is often complete such that individuals typically adapt to blissful experiences and return to baseline levels of well-being. For example, Luhmann, Hofmann, Eid, & Lucas (2012) found that there was a "honeymoon effect" when individuals married (i.e. well-being improved), but that they quickly adapted to the experience and returned to their pre-marriage levels of well-being. Other research shows that the birth of a child impacts positive emotions and life satisfaction differently. Positive emotions initially decrease after the birth of a child and then slowly return to baseline (Luhmann et al., 2012). In contrast, life satisfaction increases after the birth of a child, but as the hard work of parenting continues, satisfaction returns to baseline levels within two years (Dyrdal & Lucas, 2013). In the case of finding a job after a period of unemployment, positive emotions stay relatively stable over time, while life satisfaction initially declines upon reemployment and then increases in the ensuing year (Luhmann et al., 2012).

As this evidence suggests, the rate and completeness of hedonic adaptation may differ depending on the particular life experience. Moreover, set points for well-being can change due to momentous experiences, especially distressing ones. This indicates that hedonic adaptation may not be inevitable, which is an important modification to the original theory. Another important modification is that set points are not neutral; many people tend to be happy the majority of the time and return to a slightly positive set point (Diener & Diener, 1996). Although set points tend to be positive, three primary factors influence an individual's happiness level: genetics, life circumstances, and intentional activities that involve targeted behaviors to increase happiness (Lyubomirsky, Sheldon, & Schkade, 2005). As suspected by early theorists, a substantial part of the variation in happiness is

genetically-based, but levels of happiness can change. A 17-year study found that although most people had stable levels of well-being across time, 24% showed increases from baseline (Fujita & Diener, 2005). Thus, although there are individual set points in well-being, they are not fixed. Indeed, the affective (i.e. positive and negative emotions) and cognitive (i.e. life satisfaction) components of well-being may also have different set points. In sum, hedonic adaptation is not inevitable and it may be possible to modify its course.

Hedonic adaptation occurs in the context of both positive and negative experiences, but presumably people want to prolong positive feelings and limit negative feelings. Although nobody can escape negative experiences, certain factors like the use of coping strategies can hasten adaptation. Reappraisal, which involves reinterpreting distressing events and emotions, is related to more positive emotions, fewer negative emotions, and better interpersonal functioning compared with suppression, which involves restraining emotional expression (Gross & John, 2003). Individuals who use reappraisal adapt to negative life events more quickly than those who suppress. Additionally, personality characteristics predispose individuals to use specific coping strategies. For example, Bolger and Zuckerman (1995) found that neurotic individuals chose poor coping strategies, which aggravated their suffering and slowed adaptation to distressing experiences. Conversely, optimistic individuals relied on positive coping strategies, which sped adaptation to distressing experiences.

Attention to and variety in experiences are other factors that affect hedonic adaptation. Wilson and Gilbert (2008) theorize that when an individual attends to an event and reacts with positive or negative emotions (e.g. a student feels great because he aced an exam), the next course of action is to explain why the event occurred. If individuals can explain and make sense of the event (e.g. a student put a lot of effort into studying), then they adapt quickly because attending to the event is no longer necessary. However, if the event is unexplainable (e.g. a student has not attended class recently so how did he pass?), individuals will continue to attend because of the surprise, thereby delaying adaptation to the event. Other researchers posit that variety, or the mixture of experiences and emotions, plays a key role in hedonic adaptation. Sheldon and Lyubomirsky (2006) found that people who participated in varied activities (e.g. exercising in the gym Monday and trail running Tuesday) were happier 12 weeks later than people who had a change in a stable circumstance (e.g. moving to a new house). Varying activities enhances novelty and, by definition, it is more difficult to adapt to something that is changing. In contrast, changes in circumstance are subject to adaptation because they are relatively constant.

Feeling gratitude and savoring an experience are other ways to thwart adaptation to positive life experiences. When people express gratitude and relish an experience, they are able to appreciate their circumstances and derive maximal enjoyment, which can delay adaptation to positive events. For example, individuals who were not allowed to eat chocolate (presumably a positive experience) took great pleasure eating chocolate later after regaining access to it (Quoidbach & Dunn, 2012). By contrast, individuals who had constant access to chocolate showed diminished happiness after continuing to eat it. This suggests that enjoyment can be extended if an infrequent experience is savored and appreciated.

Although hedonic adaptation has evolutionary advantages, conscious efforts to reduce the adverse effects of negative life events or prolong the satisfying effects of positive life events can contribute to greater happiness. Furthermore, given that hedonic adaptation is

not inevitable, interventions specifically designed to boost a person's happiness may be effective. Indeed, research demonstrates that interventions can improve well-being in the short-term via straightforward activities such as writing letters of gratitude (Bolier et al., 2013). Knowledge about hedonic adaptation can inform the development and efficacy of such interventions by integrating a variety of positive experiences into the intervention.

See Also

Gratitude
Life Satisfaction
Personality and Positive Psychology

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Heritability

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Every behavioral trait is heritable. This is Turkheimer's first law of behavioral genetics. Personality is no exception. Personality can be understood as a person's characteristic thoughts, emotional responses, and behaviors. Personality traits are patterns of those relatively enduring predispositions that influence our behavior across time and situations. Personality is hereditary, or passed down from one generation to the next via genetic information, and is therefore heritable. Heritability is the proportion of phenotypic variance in an attribute in a population due to genetic variance in that population, and personality traits are heritable. This encyclopedia entry explains what heritability is, briefly describes the methods by which researchers examine the heritability of traits, and details the extent to which particular personality traits are heritable.

Heritability is the proportion of phenotypic variance that can be attributed to variance in genetic influence among individuals. A phenotype is the manifested trait of an individual. This includes height, skin color, and personality. Just as people differ in facial appearance, for example, so too do they differ in personality. Phenotypic variance can thus be broken down into two components: genetic influence and environmental influence. Heritability is the former; it is an estimate of the portion of variance in personality that can be attributed to differences in people's underlying genetic makeup.

It is important to note that heritability is an estimate of genetic influence based on the sampled population (of many individuals); it cannot be estimated from or applied to a single person. Because heritability is estimated from a group of individuals, its estimated proportion is dependent upon the variation among those individuals. For example, if the population sampled differed widely in environments (e.g., some people were from rural Africa, some were from Beijing, China), the proportion of variance in personality attributable to genes would be lower than a population of individuals from relatively homogenous environments. When the sample of individuals is from a homogenous environment, there is less variation in their environments, allowing for more variation in their phenotype to be explained by differences in their genes. When the sampled individuals are from widely

varying environments, on the other hand, this environmental variation diminishes the proportion of their phenotypic differences that can be attributed to genetic influence.

Behavioral genetics is a field of research that uses a variety of methods to estimate heritability. In addition to adoption and family studies, twin studies are a common method. In twin studies, researchers recruit a sample of identical (monozygotic) and fraternal (dizygotic) twins. Monozygotic (MZ) twins result from the fertilization of one egg (i.e., one zygote), which then splits into two developing fetuses. Because the two resulting fetuses were formed from the same egg and sperm, they are genetically identical, sharing 100% of their genes with their co-twin. Dizygotic (DZ) twins result from the independent fertilization of two eggs by two different sperm cells. Like regular siblings, dizygotic twins only share roughly 50% of their genes by common descent. Twins, whether dizygotic or monozygotic, are often raised similarly. That is, they share the same birthday, parents, house, peers, and neighborhood. Through twin studies, researchers capitalize on MZ and DZ twins' similarities in environments and differences in genetic relatedness (100% for MZ, 50% for DZ).

Heritability can be estimated by comparing the phenotypic similarity between MZ and DZ twins. The more a trait is caused by genes, the more similar MZ co-twins should appear in that trait compared to DZ co-twins. This is because MZ twin have 100% of their genes in common, while DZ have only 50% in common. The more a trait is caused by the environment, the more similar both MZ and DZ twins should be on that trait (because both MZ and DZ twins experience relatively similar environments).

The environmental influence on traits can be broken into two subcomponents: shared and non-shared. Shared environment refers to the environmental factors that twins have in common, such as parents, neighborhood quality, household income, etc. Non-shared environment refers to the environmental factors that each co-twin experiences uniquely. For example, one twin (but not the other) may attend summer camp, experience a tumultuous romantic relationship, or attract a supportive best friend.

Theorists and behavioral genetic researchers have published much work demonstrating the extent to which personality attributes in a population can be accounted for by genetic variance. Notably, thousands of genes contribute to specific traits, such that genes combine to influence overall personality, and, through personality's interaction with the social world, happiness and well-being (Weiss, Bates, & Luciano, 2008). Temperament, biologically-based personality tendencies that are conceptualized as broader than specific traits, may be the main aspects of personality that are influenced by genes. Specifically, the broad patterns of activity level, sociability, and emotional stability appear to be highly heritable, as evidenced by a review of behavioral genetic research (Buss & Plomin, 2014).

With respect to specific personality traits, each of the Big Five personality traits has heritability estimates around .5 (Bouchard, 2004). Briefly, myriad research has supported the contention that personality can be captured by five factors, usually conceived as *openness*, *conscientiousness, extraversion, agreeableness*, and *neuroticism*. Openness is associated with the common phrases like "open-minded" or "up to try anything new," and its essence is a divergent cognitive style that seeks novelty and complexity while drawing connection between various pieces of information. Conscientiousness involves orderliness and self-control in the pursuit of goals. Extraversion is associated with positive emotion, sociability, exploratory activity, and reward seeking. Agreeableness is more or less synonymous with

being kind, sympathetic, cooperative, warm, and considerate. Neuroticism can be understood as activity of negative emotion systems such as fear, sadness, anxiety, and guilt.

Genetic variance accounts for about 57% of variance in adult population's *openness,* 49% for *conscientiousness*, 54% for *extraversion*, 42% for *agreeableness*, and 48% for *neuroticism* (Bouchard, 2004). Likewise, the Big Three are heritable: Genetic variance accounts for about 50% of variance in adult population's *positive emotionality*, 44% for *negative emotionality*, 52% for *constraint.*

Evidence to support those findings and for the average effect size of genetic variance in predicting personality attributes was furnished by a recent meta-analysis. (A meta-analysis is a statistical combination and summary of many studies that have researched the same subject in one analysis, which provides stronger evidence than the results of any single study.) That meta-analysis included 62 independent effect sizes, more than 100,000 participants, men and women and of all ages, and it found the average effect size of genetics to be .40, meaning that 40% of individual differences in personality are due to genetic influences, while 60% are due to environmental influences (Vukasović & Bratko, 2015).

Heritability of personality traits appears to be stable over time, or as people age (Loehlin & Martin, 2001). Specifically, using the Eysenck personality scale and a twin registry of 5,400 pairs of twins, researchers found that heritabilities were reasonably stable across age for *psychoticism*, *extraversion*, and *neuroticism*. The personality trait *lie*, or social desirability, showed some influence of genetics and shared environment in all but the elderly age group. Personality traits do tend to change over time, with *psychoticism*, *extraversion*, and *neuroticism* decreasing as people get older and *lie* increasing as people get older (Loehlin & Martin, 2001). Within a longitudinal sample of twins, *psychoticism*, *extraversion*, and *lie* stopped or reversed their trends between ages 56 and 62, whereas levels of *neuroticism* continued to drop (Loehlin & Martin, 2001). The pattern and extent of personality change over time are themselves heritable, as evidenced by more similar patterns of personality change in monozygotic relative to dizygotic twins (McGue, Bacon, & Lykken, 1993). Additionally, the heritability of personality traits appears consistent across cultures (Yamagata et al., 2006).

Cognitive ability, closely tied to personality attributes, has a substantial level of genetic influence, reaching a peak .88 heritability estimate in adulthood (Bouchard, 2004). Further, social attitudes are also heritable. For example, conservatism and right-wing authoritarianism each have a heritability estimate of about .55 (Bouchard, 2004). Religiosity seems to be somewhat heritable, with variance in genetics accounting for 30% to 45% of the trait's variance in an adult population (Bouchard, 2004). Even such personality tendencies as nostalgia and self-enhancement are heritable at estimates of .29 and .37, respectively (Luo, Liu, Cai, Wildschut, & Sedikides, 2016).

As for the future of research examining the genetic basis of particular personality traits, burgeoning technology and methodology will lead the way. Data from molecular genetics and brain physiology will likely contribute to understanding the genetic basis of personality traits (Bouchard & Loehlin, 2001). So far, a few specific genes have been tied to a few specific traits. For example, the type 4 dopamine receptor (DRD4) gene is associated with novelty seeking, or the desire to pursue new experiences (Cloninger, Adolfsson, & Svrakic, 1996; Ekelund, Lichtermann, Järvelin, & Peltonen, 1998). The theory is that people with one form of this gene are deficient in dopamine and therefore seek out thrills to increase

dopamine release. Another gene, the serotonin transporter gene 5-HTTLPR, which regulates serotonin, is associated with neuroticism (Jang et al., 2001; Munafò et al., 2009). Although these effects are small, they do provide insight into the genetic bases of particular traits.

In summary, heritability is the proportion of phenotypic variance in a trait attributable to genetic variance in that population. A wide body of evidence supports that personality traits are heritable. Although most research in this domain has been conducted using the Big Five personality scale, personality traits as defined by different models seem to be heritable. Specifically, they tend to be heritable in the 40–50% range. Behavioral genetics research – twin, adoption, and family studies – furnishes the empirical evidence to decipher the relative contributions of genes and environment to personality traits. There is evidence that personality change across age is heritable and that the heritability of traits is consistent across different cultures. Modern technological and methodological advances may allow future research to further delineate which genes predict which personality traits.

See Also

Behavioral Genetics
Behavioral Genetics, General Features and Methodological Issues
FFM and Facets
Gene Environment Interaction
Heritability
Human Genome Project and Personality

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HEXACO Model of Personality

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The HEXACO model of personality structure consists of six basic dimensions: Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C), and Openness to Experience (O). According to the HEXACO model, these six dimensions can be used to summarize people's personalities and to classify personality traits.

Origins

The HEXACO framework originated in lexical studies of personality structure. In these investigations, researchers identify the familiar personality-descriptive terms (typically adjectives) of a given language, and obtain self- (or observer) ratings on these adjectives from a large sample of persons. These ratings are then analyzed to identify the broad dimensions that underlie these personality traits. By finding the largest set of dimensions that is recovered widely across lexical studies conducted in various languages, researchers can determine the major factors of personality variation.

Early lexically-based research in the English language produced the five personality dimensions that were the basis for the Big Five or Five Factor Model of personality structure. However, this early research was based only on one language and was limited by the small variable sets that could be analyzed with the limited computing power available. When larger variable sets were examined in English and in various European and Asian languages, it became clear that six (but no more than six) personality factors could be widely recovered (Ashton, Lee, Perugini et al., 2004).

Listed below are some terms that typically define the two poles of each of the six lexical personality factors:

Honesty-Humility (H): fair, honest, loyal, sincere, unassuming versus boastful, deceitful, greedy, hypocritical, pompous, pretentious, sly

Emotionality (E): anxious, emotional, fearful, oversensitive, sentimental, vulnerable versus brave, independent, self-assured, stable, tough

Extraversion (X): active, cheerful, extraverted, lively, outgoing, sociable, talkative versus introverted, passive, quiet, reserved, shy, withdrawn

Agreeableness (A): agreeable, gentle, lenient, mild, patient, peaceful, tolerant versus choleric, ill-tempered, quarrelsome, stubborn

Conscientiousness (C): careful, diligent, disciplined, organized, precise, thorough versus absent-minded, irresponsible, lazy, negligent, reckless, sloppy

Openness to Experience (O): creative, innovative, intellectual, ironic, unconventional versus conventional, shallow, unimaginative

In most lexical studies of personality structure, the Openness factor has been interpreted variously as Intellect, as Imagination, or as Unconventionality, depending on the terms that define the factor most strongly. Differences across investigations in the content of this factor are partly due to differing approaches used in selecting the variable sets. In some lexical studies of personality structure, researchers have included terms describing mental ability but have excluded terms describing conventionality or unconventionality; in other studies, the opposite rule has been followed. The HEXACO model follows the common tendency to consider mental ability as a domain of psychological variation separate from that of personality characteristics.

One noteworthy result of the various lexical studies of personality structure was that terms describing altruistic tendencies – such as generous, kind, and soft-hearted – would show their primary loadings sometimes on Honesty-Humility and sometimes on Agreeableness (and occasionally even on Emotionality). In some studies, altruism terms would chiefly define a broad Honesty-Humility factor, leaving a narrower Agreeableness factor, whereas in other studies, altruism terms would chiefly define a broad Agreeableness factor, leaving a narrower Honesty-Humility factor. The superficial differences between solutions of these two kinds tended to obscure their similarity, but as explained in a later section of this report, the tendency for altruism terms to divide their loadings across Honesty-Humility and Agreeableness (and also Emotionality) is consistent with the theoretical interpretation of those factors.

Some research studies have been conducted to examine the similarity of the six-factor solutions obtained from various languages' personality lexicons to the hypothesized six-factor structure. In some investigations, marker scales representing the HEXACO factors have been administered along with adjectives representing the obtained six lexical factors of a given language. These studies have generally showed fairly strong convergent and much weaker discriminant correlations between the two sets of scales (see summary in Ashton & Lee, 2010). In another investigation, layperson judges rated the conceptual similarity of HEXACO factor definitions to sets of adjectives representing the six lexical factors of various languages. That study showed generally high convergent similarity ratings and much lower discriminant similarity ratings (see summary in Ashton & Lee, 2010).

Assessment

The instrument most widely used in assessing people's levels of the HEXACO factors is the HEXACO Personality Inventory – Revised (HEXACO-PI-R). This personality inventory can be administered in self-report or observer report form; the full-length version

contains 200 items, but the 100-item and the 60-item versions are more widely used in personality research. Scale scores are reported for each of the six broad HEXACO factors and for four narrower traits (often called facets) within each of the factors; a 25th facet-level scale, Altruism, is intended to load on three factors and is not a constituent of any single factor scale (Ashton & Lee, 2009).

The facet-level scales of each factor are as follows (facet names in parentheses): Honesty-Humility (Sincerity, Fairness, Greed Avoidance, Modesty); Emotionality (Fearfulness, Anxiety, Dependence, Sentimentality); Extraversion (Social Self-Esteem, Social Boldness, Sociability, Liveliness); Agreeableness (Forgivingness, Gentleness, Flexibility, Patience); Conscientiousness (Organization, Diligence, Perfectionism, Prudence); Openness to Experience (Aesthetic Appreciation, Inquisitiveness, Creativity, Unconventionality).

The HEXACO-PI-R was developed broadly on the basis of Douglas Jackson's principles of test construction, and consequently has shown relatively little influence of self-report response biases, such as social desirability. Scale intercorrelations have been relatively low and self/observer agreement has been relatively high (e.g. Lee & Ashton, 2013).

Comparisons with Five-Factor Model

The HEXACO factors can be compared with those of the well-known "Five Factor Model (FFM)", which became the predominant personality structural model during the 1980s. Whether judged in terms of content or in terms of empirical associations, the HEXACO Extraversion, Conscientiousness, and Openness factors are very similar to their counterparts in the FFM. HEXACO Agreeableness and Emotionality roughly represent blends of Agreeableness and Neuroticism in the FFM, such that the ill-temper associated with FFM Neuroticism defines the low pole of HEXACO Agreeableness, and such that the sentimentality associated with FFM Agreeableness defines the high pole of Emotionality. HEXACO Honesty-Humility has some overlap with FFM Agreeableness; however, Honesty-Humility, Emotionality, and Agreeableness also contain considerable variance not captured within the five-dimensional models (Ashton & Lee, 2019).

Theoretical Basis

The content of the HEXACO factors led to suggestions regarding the adaptive trade-offs associated with higher and lower levels of each dimension. According to these suggestions, three of the HEXACO factors involve higher or lower levels of different forms of altruism or prosocial tendency, and the other three HEXACO factors involve different forms of endeavor or engagement (Ashton & Lee, 2007). The proposed benefits of having higher and lower levels of each dimension are as follows:

Honesty-Humility: gains from cooperation with others vs. gains from exploiting others
Agreeableness: gains from cooperation with others vs. avoiding losses from being exploited by others
Emotionality: reduced harm to self and kin vs. potential gains from exposing self and kin to harm

Extraversion: gains from social endeavor (mates, friends, allies) vs. avoiding costs of social endeavor (energy, risks from social environment)

Conscientiousness: gains from task-related endeavor (material gains, safety) vs. avoiding costs of task-related endeavor (energy)

Openness to Experience: gains from idea-related endeavor (material and social gains from discovery) vs. avoiding costs of idea-related endeavor (energy, risks from natural and social environment)

The HEXACO Model in Research

Although the HEXACO model of personality has been used in a variety of psychological research, many investigations using the HEXACO model have focused on the Honesty-Humility factor. Several categories of such investigations are summarized in the following subsections.

Ethical and Unethical Behaviors in the Workplace

The HEXACO model has been shown to be particularly useful in predicting some moral and honest (versus unethical and delinquent) behaviors in various contexts. In particular, self- and observer reports of the Honesty-Humility and Conscientiousness factors have figured prominently in predicting workplace behaviors such as organizational citizenship, counterproductivity, unethical decision-making, dishonest negotiation tactics, manipulative influence tactics, and others (e.g. Cohen, Panter, Turan, Morse, & Kim, 2014; see also meta-analysis by Pletzer, Bentvelzen, Oostrom, & De Vries, 2019). The same two factors are also associated with guilt proneness (Cohen, Wolf, Panter, & Insko, 2011).

Direct Observations of Cheating

The HEXACO model has been used in studies involving behavioral measures of dishonest behaviors. In these studies, participants are placed in situations in which they may feel tempted to cheat for some gain (e.g. misreporting the outcome of coin tossing to get a monetary award). In various experiments, people lower in Honesty-Humility – as assessed through self-reports provided anonymously – have been more likely to engage in such behaviors. The HEXACO model generally outperforms the Five-Factor Model in predicting objective cheating behaviors primarily because of the Honesty-Humility factor (Hilbig & Zettler, 2015).

Selfish Actions in Economic Games

Low Honesty-Humility has been shown to be associated with selfish actions in economic games. For example, persons lower in Honesty-Humility are more likely to engage in unilateral defection against cooperating players in the Prisoners' Dilemma Game (Zettler, Hilbig, & Heydasch, 2013), and also to engage in "free riding" behaviors in the Public Goods Game (Hilbig, Zettler, & Heydasch, 2012). In the Dictator Game,

people lower in Honesty-Humility tend to allocate more money to themselves, whereas people higher in Honesty-Humility tend to allocate the money equally. In the Ultimatum game, by contrast, people lower in Agreeableness tend to reject unfair offers made by the other player, whereas people higher in Agreeableness tend to accept those offers (Hilbig, Zettler, Leist, & Heydasch, 2013; see also Thielmann, Spadaro, Balliet, in 2020 for a meta-analysis).

Ethical Leadership

Various leadership styles have been investigated in relation to personality traits. Honesty-Humility and Conscientiousness have been found to be the two main personality factors underlying the ethical leadership style, whereby the leader promotes followers' moral behaviors by being a model of such behaviors. Other HEXACO factors are also related to other leadership styles, such as charismatic, supportive, and task-oriented leadership (De Vries, 2012).

Approach to Sex, Money, and Power

Honesty-Humility is strongly implicated in people's approaches to sex, money, and power. People lower in Honesty-Humility are more likely to pursue a short-term mating strategy, to view romantic relationships as a game, and to engage in quid pro quo sexual harassment. Lower Honesty-Humility has also been found to predict conspicuous consumption (e.g. ostentatious displays of wealth) and materialism (e.g. defining one's success in term of material wealth). Finally, persons lower in Honesty-Humility have a stronger motivation to obtain power over many other people and to reach the top of the social hierarchy (Lee, Ashton, Wiltshire, Bourdage, Visser, & Gallucci, 2013).

Risk-taking Behaviors

The personality correlates of risk-taking behaviors tend to differ depending on the risk-taking context. In general, physical risk-taking behaviors are negatively correlated with Emotionality and Conscientiousness (and Openness to Experience, if the risk-taking behavior is motivated by a desire to pursue novel experiences). Honesty-Humility, in contrast, predicts financial risk-taking such as high-stakes gambling and short-term speculation. In general, people lower in Honesty-Humility (and people lower in Emotionality) are more willing to take physical and/or financial risks for pursuit of wealth or of social status and power (Ashton, Lee, Pozzebon, Visser, & Worth, 2010; Weller & Tikir, 2011).

Personal Values

Empirical research on personal or social values has identified two main underlying dimensions. One dimension is called Self-Transcendence (versus Self-Enhancement), which is characterized by values of benevolence and universalism. The other dimension is called Openness to Change (versus Conservation) and is characterized by values of independence and autonomy. The two value dimensions have been found to correspond

roughly to the Honesty-Humility and Openness to Experience factors, respectively. Honesty-Humility and Openness to Experience have also shown significant links with two political ideology variables that correspond fairly closely to the two value dimensions, namely Social Dominance Orientation (SDO, a preference for inequalities between groups) and Right-Wing Authoritarianism (RWA, a willingness to submit to established authority and tradition), respectively (Lee, Ashton, Ogunfowora, Bourdage, & Shin, 2010).

Assumed Similarity/Similarity Among Social Partners

The associations of Honesty-Humility and Openness to Experience with the two basic value dimensions suggest that these two personality factors might play important roles in the formation of social relationships. Given the importance of personal values to people's identity, people may prefer to associate with persons whose values are similar to their own. Consistent with this reasoning, close friends and romantic partners tend to be somewhat similar to each other in Honesty-Humility and Openness to Experience, but not in the other HEXACO dimensions. Furthermore, levels of assumed similarity (i.e. the extent to which one perceives one's friend or partner to be similar to oneself) for Honesty-Humility and Openness to Experience are even higher than the actual levels of similarity. These findings suggest that people are likely to form or maintain social relationships with those who are similar in these two personality factors, presumably due to their links with personal values (Lee, Ashton, Pozzebon, Visser, Bourdage, & Ogunfowora, 2009).

Relations to the "Dark Triad"

Three socially aversive personality traits conceptualized in social and clinical psychology have been frequently examined together since the early 2000s. These personality traits – Machiavellianism, Narcissism, and Psychopathy – have been collectively named the Dark Triad. Several studies have shown that the HEXACO model can account for the variance in the Dark Triad fairly well. Specifically, the common variance shared by the three personality traits is essentially equivalent to low Honesty-Humility (Hodson, Book, Visser, Volk, Ashton, & Lee, 2018). In addition, some of the unique characteristics of each of the Dark Triad are also accounted for by the other HEXACO factors. For example, Psychopathy is significantly linked to (low) Emotionality and (low) Conscientiousness, whereas Narcissism is significantly linked to Extraversion (Lee et al., 2013).

See Also

FFM and Facets

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Independent/Interdependent Self

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The *self* represents individuals' understandings of who they are. More than 100 years ago, William James (1890) argued that a complete understanding of the self required that psychologists recognize the multidimensional nature of the self-concept. James' approach proved fundamental in shaping modern psychology's study of the self – indeed, the conceptualization of the self as defined by multiple, relatively independent constituents is the dominant approach in contemporary self and identity research.

Between James and the present approach to the self, however, psychology did not always study the self as multidimensional. Much of the work on the self in the mid-1900s focused on individual, private, and unique aspects of identity, with researchers from the United States, Canada, and Western Europe theorizing about the self as a largely separate entity, unconnected to other people. Over time, this focus expanded with the development of new theoretical approaches emphasizing the distinction between individuals' private self-views and the public self they present to others, the role of self-categorization and group membership in self-definition across cultures, and the importance of close relationships to people's understanding of who they are. Drawing on these theoretical developments, along with the burgeoning literature on cross-cultural differences in how people understand the self and others, Markus and Kitayama (1991) proposed the broad distinction between an *independent self-construal* that defines and understands the self without connection to others, and an *interdependent self-construal* that defines and understands the self in relation to other individuals and groups. People with an independent construal of the self view the self as unique, private, and autonomous, whereas people with an interdependent construal of the self view the self as related to others, incorporating and referencing the views of other people and groups in their identity. This perspective has become the most prominent approach to understanding the structure of the self, and substantial research has explored the influence of independent and interdependent understandings of the self on cognition and emotions. The rest of this entry provides an overview of the measurement of how individuals understand and value different aspects of identity; how culture shapes different

understandings of the self; some connections between cognition, emotions, and the self; and future directions in research on self and identity.

Measurement and Conceptualization

The most common method for assessing the degree to which participants define themselves independently or interdependently is with Likert-type scales. The Self-Construal Scales constructed by Singelis (1994) are by far the most widely used measure, and they assess the degree to which participants construe the self independently and interdependently. The Self-Construal Scales follow the independent-interdependent distinction and therefore consider interdependent aspects of identity broadly. However, substantial research has shown that there are at least three components of the interdependent self: the relational self, which includes romantic and platonic relationships with close others; the public self, which includes one's reputation and public image in the eyes of others; and the collective self, which includes one's group memberships and connections to larger collectives (see Table 1) There are also scales to measure the extent to which people value or define the self through these more specific components of the interdependent self. For instance, Cross, Bacon, and Morris (2000) developed the Relational-Interdependent Self Construal Scale to measure the extent to which people define the self through relationships. The Aspects of Identity Questionnaire (Cheek & Cheek, 2018) measures the importance people place on the independent self as well as each of the three components of the interdependent self, thereby measuring individuals' orientation toward each of the four selves.

When researchers want to make causal claims about the influence of different identities, one common strategy is to attempt to activate or prime a specific self-construal. Classic research in the 1980s, for example, used mirrors and video cameras to make participants attend to the public self (i.e. the self as seen by others), and other techniques involve having participants consciously think about how they are different from or connected to others (e.g. their family) or circle individual or collective pronouns (e.g. "I" and "me" versus "we" and "us") in stories (Brewer & Gardner, 1996). These methods are thought to make particular identities and self-construals temporarily more salient, which can then allow researchers to test their causal influences on variables of interest. Additional measures and manipulations of the independent and interdependent self are reviewed by Cross, Hardin, & Gercek-Swing (2011).

Table 1 Independent and Interdependent Aspects of the Self

Aspect of identity	Features	Example
Independent self	Individual traits, values, and abilities	"I am an introspective person."
Interdependent self		
Relational self	Close relationships with others	"I am Joe's partner."
Public self	Social roles, reputation, and public image	"I am popular."
Collective self	Memberships in groups and social categories	"I am Southern."

Culture

Markus and Kitayama (1991) proposed the distinction between independent and interdependent selves based on a review of the literature on cross-cultural differences in the self. Western, individualistic cultural contexts afford more independent self-construals, and in this view an autonomous self that pursues personal needs and goals and resists conformity is seen as mature. In contrast, collectivist cultural contexts afford more interdependent self-construals, and in this view a mature self is one that considers the needs of close others and the group, maintaining harmonious social ties rather than pursuing individual self-interest without regard to norms and the needs of others. Interdependent self-construals are conceptualized as more prominent in East Asian and other non-Western societies and as less prominent in Western societies. Recent work has also shown that independent selves are more common in middle- and upper-class Western cultural contexts, whereas Western working-class contexts afford more interdependent selves, though the latter are a result of the need to rely on and engage with others as a result of low socio-economic status rather than a broader, institutionally-perpetuated cultural emphasis on relatedness as in East Asian cultural contexts (for discussion, see Stephens, Markus, & Phillips, 2014). Importantly, individuals can have both independent and interdependent views of the self. Thus, these views are defined as relatively orthogonal, but social and cultural contexts tend to make one or the other more prominent.

Cognition

Substantial research indicates that how individuals understand the self influences their social and nonsocial cognition. In particular, people with more interdependent views of the self attend more to the thoughts and opinions of others, pay more attention to conversational norms, and are more likely to consider social norms when making decisions than people with more independent views of the self (e.g. Haberstroh et al., 2002). Similarly, when thinking about the behavior of others, people for whom interdependent aspects of the self are more important are more likely to make situational rather than dispositional attributions for behavior. Interestingly, understandings of the self influence relatively non-social cognition as well: valuing interdependent relative to independent aspects of the identity predicts attending to contextual features more than specific elements within a visual scene or system (e.g. Lewis, Goto, & Kong, 2008).

Emotion

Understandings of identity may also influence individuals' emotional experiences. Kitayama, Karasawa, and Mesquita (2004) argued that independent views of the self are associated with more socially disengaging emotions (e.g. anger), whereas interdependent views of the self are associated with more socially engaging emotions (e.g. shame). That is, some emotions involve and arise from social relations and interdependence, whereas others arise more from independence and experiences and feelings of the self as separate

from others. Broadly, the emotional experiences of individuals who understand the self more interdependently may be shaped by social influence and relational ties more than the emotional experiences of more independent individuals.

Future Directions

Research on the self continues to grow, and although the broad distinction between the independent self and the interdependent self continues to provide a useful theoretical framework, many researchers are now exploring the limits to this general dichotomy. For example, as researchers explore different cultural features, it becomes important to consider more specific components of the interdependent self. The cultural variable tightness-looseness, which describes the cultural strength of norms, is likely to influence the public self more than collective self, whereas the opposite is likely true of the variable individualism-collectivism. Hence, examining only "the interdependent self" provides only a partial picture to the cultural dynamics at play. Moreover, as the psychology of the self extends to more countries beyond North America and East Asia, the range of identities and self-construals will likely expand, requiring reassessment of classic theory based on the independent-interdependent framework. Vignoles et al. (2016), for example, recently proposed a seven-dimensional model that substantially revises the original broad distinction highlighted by Markus and Kitayama 30 years ago, suggesting that there are more ways to be independent and interdependent. Contemporary work continues to build on and refine classic work on the self, and although specific models of the self may change over time, the independent-interdependent distinction will remain valuable at least insofar as it draws attention to the role of others in the self, and the theoretical importance of understanding the self both privately and socially across different societies, time periods, and cultural contexts.

See Also

Individualism vs. Collectivism
Self-concept, Expressions of the
Self-construal

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Personal Construct Theory of George A. Kelly

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Personal Construct Theory (PCT)

Kelly's Personal Construct Theory (1955) offers a theoretical perspective of how people make sense of their worlds and proposes that through the continuous testing of personal constructs, and refinement, the individual is able to understand the environment around them and be better placed to predict outcomes of future events. This theory challenges the dogma in psychology at the time, where the individual is the subject of their actions (behaviorism) and instead, that "Every man is, in his own particular way, a scientist."

Unlike *accumulative fragmentalism*, the notion that discoveries involve verifying individual "fragments" of information that allow the individual to make sense of the situation when they all fit into place, Kelly's theory of *constructive alternativism* states that any particular event can have several different interpretations that can all be entertained at once, without the need to refute one before considering another. Here, *personal constructs* are binary labels (e.g. happy-sad, friendly-unfriendly) that can aid the interpretation of experiences. What makes constructs personal is that even though individuals may share the same labels, the meaning of the construct is unique to the individual. This, Kelly proposed is what gives rise to individual differences in personality. The purpose of a construct is to influence what the individual thinks will happen and subsequently influence their course of action. Therefore, one's experience of a situation may be dictated by the constructs used to formulate the expectation and not by one's reality.

In addition to personal constructs, there are 11 corollaries:

1) Construction corollary: anticipation is dependent on past experiences.
2) Experience corollary: when an outcome is different from that predicted by the construct, it is reconstrued to change future expectations.
3) Dichotomy corollary: experiences are stored as constructs, and then we can analyze the world through them.

4) Organization corollary: constructs are connected to each other in a network of relationships that may be loose or tight.

5) Range corollary: constructs are only useful in a limited range of situations.

6) Modulation corollary: constructs can only be modulated if they are flexible enough to accommodate new information.

7) Choice corollary: we choose to expand our constructs or stay with our current constructs.

8) Individuality corollary: as everyone's experience is different, their constructs are different.

9) Commonality corollary: many experiences are similar or shared, leading to similarity of constructs.

10) Fragmentation corollary: many of our constructs conflict with each other.

11) Sociality corollary: the extent to which two individuals can interact depends on the extent to which they are using similar construct systems. As a result, when constructs are challenged or incomplete, it can precipitate emotional states, e.g. anxiety, confusion, anger, fear.

Kelly's (1955) PCT has been adapted by Dalton and Dunnett (1992) to incorporate sociality and communality as key principles.

Nature of Personality Adjustment

According to the PCT, successful personality adjustment involves not just the creation of personal constructs but the ability to modify our personal constructs based on our past experiences. Kelly described two ways in which this can occur:

- *The Circumspection-Preemption-Control Cycle* (C-P-C cycle informally known as the "if-then" approach): the "if" refers to the construct and selection of action which is divided into three phases: (1) circumspection: propositional constructs used to generate potential course of actions, (2) pre-emption: after assessing the situation, one action is selected, and (3) control: course of action planned according to the pre-emptive decision. The "then" refers to the evaluation of the outcome and appropriate modification of the construct. If it was a successful outcome, this would strengthen the construct; if it was unsuccessful, an individual will try an alternative (i.e. preemptive stage) or start generating novel actions (i.e. circumspective stage).
- *Creativity cycle* (informally known as the "what-if" approach): constructs are viewed in a much less rigid way allowing the exploration of novel possibilities in a safe theoretical capacity.

According to this theory, unsuccessful personality adjustment involves an inflexible construct that prevails despite repeated invalidation, which is characteristic of someone experiencing a psychological disorder. These features include:

- Impermeable constructs: construct does not change in spite of new evidence becoming available, which limits development of an individual's constructs.
- Ignorance of interpretations: individuals feel problems result from certain "facts" in their life and are ignorant to what is actually happening.

- Restrictive range of convenience: constructs can only predict a limited range of situations, which can manifest as anxiety due to inability to predict events.
- Incomplete constructs: constructs that lack sufficient information or details for the person to deal with the present scenario, which can manifest as confusion or uncertainty.

Personality Assessments Based on PCT

Kelly designed two methods to measure the nature of an individual's constructs and how they develop: (1) the *Repertory Grid*, a variant of the Role Construct Repertory Test and *self-characterization*. For the Repertory Grid, the individual is asked to identify "elements" involving any aspect of the world (e.g. people, objects, events) that is relevant to the individual. The "sequential triadic method" involves grouping elements into threes and the individual has to indicate how two of them are similar by identifying a common construct, and how the third is different. The grid method combines individual constructs to create the individual's construct system; the more comparisons made, the more applicable this is. There are two inherent assumptions regarding the utilization of this method, that (a) identifying an individual's construct system means we can predict their behavior, and (b) an individual's construct map can be modified by psychotherapy. This mathematical representation of construct systems has been extremely popular because it is flexible, wholly patient-driven and overcomes interviewer bias (Anderson, 1990). The repertory grid has also been trialed for use in patients with paranoia (Garcia-Mieres, Ochoa, Salla, Lopez-Carrilero, & Feixas, 2016) and thought disorders (Bannister & Fransella, 1966), and has shown individuals with cognitive conflicts are more likely affected by major depression (Feixas et al., 2014).

A second, more subjective measure of construct systems, is *self-characterization*. The client writes about their behavior and relationships with others in the third person, with the aim of providing the client with a different perspective of their situation. At the time, this was a very novel, pioneering narrative approach to psychology.

Psychotherapy Based on PCT

One area of psychology that PCT exerted influence is in psychotherapy. Typically, the client would present with a complaint and working with the therapist, the client will determine the maladaptive construct system. There are many different techniques operationalized in a safe environment in order to help the client reconstruct and modify resistant maladaptive personal constructs, including: role playing, dream analysis, and controlled elaboration. The focus here will be on role playing, as it is a novel psychotherapy approach that is based on Kelly coaching dramatics early in his academic career.

- *Enactment* (therapy sessions): the client acts out a certain event with the therapist or other individuals in group therapy, which is thought to expose dysfunctional constructs. Role reversal, where the client acts out the role of the other person, may be used to show why people respond to the client in a certain way. Enactment has been shown effective in family therapy (Nichols & Fellenberg, 2000) and to treat victims of abuse (Plakun, 1998).

- *Fixed role therapy* (real world): Building on the self-characterization sketch, a fixed role script is written by the therapist describing a fictional person who displays a more adaptive construct system than the client. The client then practices the script with the therapist to enhance exposure and acceptance of this novel construct. The fixed role involves the client acting out the adaptive constructs written in the script, but in the real world. Clients are asked to observe how this novel construct affects others' responses, and as this "role" is purely fictional, the client is able to view themselves in a non-threatening way. The idea is that a person's view of themselves depends on their outward actions and so by changing this it might be possible to alter their system of internal personal constructs. Both the script and the acting help provide a mirror on the client's behaviors.
- Other methods include dream analysis, where dreams are interpreted as loose constructs and explored in therapy, and controlled elaboration, where the C-P-C cycle is verbally explored to identify a dysfunctional personal construct and the therapy involves discussing what the potential outcomes are, what the alternative explanations may be, and how they can be managed.

Evaluation of Kelly's PCT

A limited evaluative overview of Kelly's PCT includes a few strengths and limitations. Strengths:

- Provides an analytical view of behavior that is not purely behavioral but also offers insight into the influence of the cognitive aspects of personality.
- Repertory test is a unique way of assessing personality and its use extends beyond psychology and into marketing research and management training programs. Its potential application for anorexia nervosa (Starzomska & Smulczyk, 2011) and eating disorders is interesting.
- Kellian-based psychotherapy represents a pioneering therapeutic approach that is reflected in contemporary cognitive-behavioral therapy.

Limitations:

- Over reliance on rationality; the theory does not account for the irrationality that is inherent in human nature but it assumes the aim of actions undertaken is to ultimately predict the world around us, which may not be always true.
- The repertory test aims to create a population-applicable tool that allows assessment of personal constructs; however, as constructs are unique to the individual, whether such a generalized technique is effective is not known. Even if constructs can be categorized, this does not necessarily mean that they can accurately predict an individual's personality or that psychotherapy would be able to modify it.

Conclusion

Kelly's PCT offers a way to conceptualize personality with novel psychotherapy approaches that may be applicable to fields that extend beyond psychology. The true effects of Kellian psychotherapy have not been witnessed as its application as part of mainstream treatment

approaches has been minimal. It would be interesting to see the effects of its use in personality disorders and in disorders where mental depiction of oneself is misaligned with the physical reality.

See Also

Clinical Applications of Cognitive-Behavioral Theory of Personality
Cognitive-Behavioral and Cognitive–Self-report Assessment Techniques
George Kelly
Schemas, Theory of

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Maslow's Hierarchy of Needs

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Abraham H. Maslow proposed a viewpoint of the individual that has become known as the third force in psychology, with the psychodynamic emphasis on unconscious processes and behaviorist emphasis on environmental controls on behavior being the two other forces. The emphasis of this third force has been to enhance the dignity of people by studying the internal processes contributing to their self-directed self-enhancement.

The Motivational Nature of Personality

For Maslow, the driving force behind personality was that individuals were constantly being motivated to meet a variety of biological and psychological needs. The meeting of these needs was assumed to operate in a dynamic process rather than in isolation (Maddi, 1996; Reis & Patrick, 1996). The principal objective of these needs is the motivation of the individual to reach a state of self-actualization. For Maslow, the state of self-actualization involves attempts by individuals to reach their full potential by using their talents and abilities to the fullest extent while trying to achieve personal growth, satisfaction, and fulfillment.

Maslow organized human needs in a manner designed to promote the achievement of this state of self-actualization by grouping them into deficiency needs and being needs (Maslow, 1970): Deficiency needs are the lower, more basic needs necessary for the survival of the individual, including hunger, thirst, safety, and social connectedness. The deficiency needs motivate the individual to engage in behavior designed to bring about the satisfaction of these needs. Being needs are the higher needs necessary for the achievement of a state of self-actualization, including those needs reflecting a desire for wisdom, aspirational development, and a sense of aesthetics.

The being needs motivate the individual to engage in behavior designed to bring about their fulfillment (e.g. going to college or an art museum). Deficiency needs are characterized by a lack of something the individual is motivated to supply. Being needs are
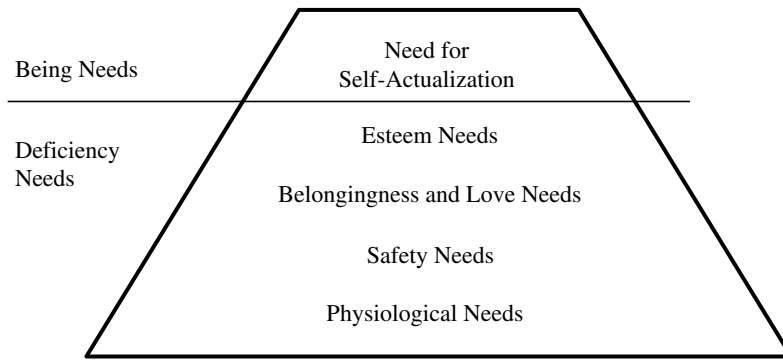
Figure 1 Maslow's hierarchy of needs.

characterized by an on-going motivational process of self-enhancement, not a deficiency in a need requiring only satisfaction. The lower needs are considered to be more potent and to have a greater influence on behavior than the higher needs. As a result of these features, the lower needs are also generally satisfied before the higher needs.

The Hierarchy of Needs

Maslow (1970) organized human needs into five basic groups in a hierarchical fashion. The logic of the hierarchy of needs is that the needs at the lower end of the hierarchy exert more power in that they apply a greater sense of urgency to be satisfied than the needs at the next level. Progressing up the hierarchy of needs results in the individual coming closer to achieving the state of self-actualization

At the bottom of the hierarchy are the most basic physiological needs. Physiological needs are those directly related to the survival of the individual. They include the need for food, water, sleep, and elimination. Such needs are extremely potent and can dominate the life of the individual when unfulfilled. For example, ideals like democracy and justice mean little to people who are on the brink of starvation. Maslow proposed that when physiological needs are routinely met, people can devote more of their energies to meeting the next level of needs – safety needs.

Safety needs are those directly related to creating an environment for living that is free from the threat of danger. They include the need for order, predictability, and structure. For most people, safety needs are met by the dwellings in which they live and by the security and predictability they provide. Just as routine seems to add to our sense of safety, changes in our lives seem to create a threat to such a sense of security. Some of the consequence of such threats based on change, ranging from divorce, death of a loved one, natural disasters, and/or terroristic events, include altering dramatically the sense of safety, security, and predictability of our daily lives (cf. Danieli, Engdahl, & Schlenger, 2004; Foa, Hembree, Riggs, Rauch, & Franklin, 2001) and a tendency to become more vulnerable to many kinds of physical (e.g. high blood pressure) and psychological problems (e.g. depression)

(Rahe, Veach, Tolles, & Murakami, 2000; Scully, Tosi, & Banning, 2000). The consistent satisfaction of safety needs allows individuals to begin considering the next cluster of needs – belongingness and love needs.

Belongingness and love needs are directly concerned with the basic desire to feel accepted by and have meaningful interpersonal relationships with others. They include the need to feel a part of some reference group (e.g. family, neighborhood, religious group, or professional organization) and the ability to both receive and give love based on such group membership (e.g. establish meaningful friendships). Belonging to various social organizations, as well as being a member of a family, gives an individual a sense of acceptance and belongingness and helps to meet this category of needs.

Esteem needs are concerned with the desire to have the respect of others and possess a sense of self-respect. Included in having the respect of others are achieving status and recognition within those significant groups and being perceived as a worthy and able member. Esteem needs can be met by being perceived or elected a leader of a group. Such status reflects the confidence and esteem others have for an individual's abilities. Those who are able to satisfy consistently the esteem needs can direct their motivation at the highest level of the hierarchy of needs – self-actualization.

Self-actualization involves the individual's desire to develop his or her abilities to their fullest potential (cf. Batson & Stocks, 2004). Such development involves obtaining a deeper sense of one's own desires and abilities and maximizing their expression in an attempt to bring them together. Such efforts for self-actualization might include taking additional risks and/or making personal sacrifices (e.g. moving to a new location away from family and friends). It is important to note that meeting the need of self-actualization is an ongoing process, not an absolute state of achievement (Polkinghorne, 2001). In addition, while the self-actualization need is at the highest level of the hierarchy, it is also the least powerful. It is for this reason that Maslow felt that very few people are able to satisfy completely this need. For such a need to be achieved, the individual must be extremely motivated from within himself or herself.

Some Points of Clarification on the Hierarchy of Needs

There are a few common misunderstandings about the processes associated with the fulfillment of the hierarchy of needs. One is that although the needs are arranged hierarchically, this does not mean that a person must completely satisfy one group before moving on to the next level. Instead, the lower needs should be satisfied only to the extent that the individual has some relief from them and can devote more attention to the higher needs. The more relief a person has from lower needs, the more attention that person can give to the higher needs. In a related manner, because it is possible to experience more than one need at a time, it is also possible to satisfy more than one need at a time. Finally, even though the lower needs are more powerful, they can be superseded by the higher needs. For example, an individual might sacrifice sleep to work toward an important personal achievement. As such, the expression of the hierarchy of needs is not as cut-and-dried as many people might assume.

Evaluation of the Hierarchy of Needs

Maslow's views have been applied to a wide variety of areas, including psychotherapy (Boorstein, 2000), religion and spirituality (Elkins, 2001; Maslow, 1976), athletic performance (Privette, 2001) and consumer behavior and marketing (Hawkins, Mothersbaugh, & Best, 2007). Although these applications of Maslow's viewpoint provide some support for its utility, criticisms of this perspective include the use of many concepts and processes to describe the operation and expression of personality that are difficult to explain (e.g. Upon what basis did Maslow select the five need categories?) and test objectively (e.g. What is the measure to assess the extent to which an individual is making progress toward self-actualization if it is different for each individual?).

See Also

Abraham Maslow
Carl Rogers
Self-esteem, Expressions of

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Meaning in Life

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While philosophers and theologians may debate the ultimate meaning of human existence, psychologists focus on the more immediate issue of whether individuals feel that their lives are meaningful. This construct includes a cluster of related epistemic states, including having a general sense that the world makes sense, understanding the purpose of one's actions, and having a sense that one has some significant role to play in the order of things (Martela & Steger, 2016). Below we review key areas of research on the causes and consequences of experiencing a sense of meaning in life.

Humanistic-Existential Perspectives on Meaning

Contemporary philosophers began to carefully attend to the role of experiencing a meaningful existence. Yet despite an interest in the study of human lives, attention to meaning was slow to develop in psychology. It was not until the rise of early humanistic and existential psychology that the field began to attend to the fundamental role of meaning in a healthy and happy life.

Rogers' person-centered approach to psychology made an initial claim to the importance of meaning. By adopting a phenomenological approach that privileges the client's experiences, Rogers proposed that any therapy must begin by understanding the meanings, values, and emotions of the client themselves. Rather than attempting to impose models, stages, or drives from a general theory, this approach works within the person's own views of who they are and their place in the world.

Another influential statement of the importance of personal meaning comes from Frankl's *Man's Search for Meaning*. This landmark work presented the novel thesis that a fundamental human motive is the pursuit of meaning, a massive departure from the prevailing approaches of the day. In support of this claim, Frankl chronicles his experience as a Holocaust survivor and notes the fundamental role of meaning as a resource for coping. From this, he proposes a novel existential therapy designed ultimately to help individuals

find or create meaning to cope with their own challenges (an approach that is broadly effective; Vos, Craig, & Cooper, 2015).

The idea that people are motivated to seek meaning was later echoed in the work of Maslow, although he argues that this motive is superseded by more pressing protective motives for security and survival. Specifically, meaning is part of the pursuit of growth or self-actualization and therefore not an issue for individuals faced with more pressing challenges.

Meaning Maintenance

Are individuals fundamentally motivated to secure meaning in the way that the earlier psychologists propose? According to the Meaning Maintenance Model (Heine, Proulx, & Vohs, 2006), individuals are so motivated to maintain an ordered and coherent understanding of their place in the world that they are both distressed by an experienced lack of meaning (or meaning violation) and motivated to alleviate that distress by restoring a perception of order and predictability.

Research on this model identifies five key meaning-making processes that allow people to restore a sense of coherence (Proulx & Inzlicht, 2012). *Assimilation* and *accommodation* allow individuals to make sense of the environment by either assimilating new data to a known concept or accommodating new information by changing one's schemas. For example, a novel work of art could be understood by assimilation into past categories based on genre or composition. Alternatively, if that work does not cleanly fit a prior label, one could generate a new concept or revise one's understanding of a style to include that work.

Another strategy people enact is *affirmation*: In response to meaninglessness, people can espouse a prior structure that provides them with a sense of structure. This can take many forms, such as affirming religious belief in response to the threat of meaninglessness to restore a sense that the world is structured.

Rather than attempting to affirm a prior meaning framework, another response is to simply identify or construct meaning in the moment. *Abstraction* refers to the process by which individuals faced with chaotic complexity derive a sense of meaningful order by discerning structure. For example, in one study (Proulx & Heine, 2008) participants experienced a threat to meaning either directly (a challenge to their values) or indirectly (by reading a short story by Franz Kafka). In both cases, those who experienced threatened meaning were more effective at detecting patterns in seemingly random strings of letters. The final strategy, *assembly*, refers to a slightly different process: While *abstraction* refers to the process of detecting an existing pattern, *assembly* refers to the process of generating coherent concepts or perspectives to make sense of the world. This kind of creative process in meaning-making is believed to play a crucial role in the efficacy of several forms of therapy.

Meaning and Well-Being

Given that accounts of meaning focus on its basic value, it is perhaps unsurprising that research tends to identify meaning as an indicator of psychological well-being. For example, those who report greater meaning on the Meaning in Life Questionnaire tend to feel

more socially connected, experience more control over their lives, show greater well-being across a range of measures, and report fewer experiences of distress or alienation (Steger et al., 2008).

The Meaning in Life Questionnaire also assesses the extent to which participants are actively searching for or seeking some greater meaning in their lives. Those who report a greater search for meaning in their lives tend to feel less socially connected and be less happy with themselves (Steger et al., 2008). Supporting research also shows that those individuals who showed greater daily fluctuation in their experience of meaning tended to experience lower life satisfaction, more negative mood, and less positive social relationships (Steger & Kashdan, 2013).

In addition to general personality assessments, clinical psychologists have attended to more proximal experiences of meaning. Park (2010) describes this important distinction between a *global* sense of coherence and purpose and a more *specific* sense that a given outcome is comprehensible and meaningful. These two forms of meaning are intimately related: A general sense of meaning can provide a framework for understanding specific stressful events (Park & Folkman, 1997). At the same time, being able to make meaningful sense out of specific events and moments can help to affirm a global sense of meaning.

Research focused on meaning-making finds overwhelming support for the positive coping benefits provided by the ability to understand and ultimately integrate into one's life specific traumatic experiences (for review see Park, 2010). For example, individuals who had lost a limb due to amputation showed greater personal growth and lower risk of depression when they could accept and understand their new circumstances.

Is Meaning Just a Feeling?

While the pursuit of meaning may seem to be the project of hours of armchair contemplation, recent work in social psychology fundamentally calls this into question. King suggests that meaning in life is the result of two independent processes (King, Heintzelman, & Ward, 2016). Meaning can arise from careful deliberate thinking, but a more common source of meaning is *intuitive*; the result of a rapid process that detects coherence in a situation through positive affective cues. Participants reported a greater feeling of meaning in response to felt positive affect and related studies find that inducing temporary negative states like loneliness also decreases perceptions of the global meaning of one's existence.

These findings further suggest that way in which one feels about a situation has a direct effect on the meaning one finds in the moment. In one series of studies, King and colleagues found that incidental positive affect caused people to perceive evidence of paranormal phenomena (e.g. UFO abductions or ghost sightings) to be more meaningful (King et al., 2007). Later work shows that individuals reporting more positive affect also reported greater meaning in life, particularly among those who attribute more significance to events that are, in fact, meaningless (e.g. a traffic light turning red just because the individual was in a rush; King & Hicks, 2009). In another study, participants in the positive affect condition were awarded $20 for completing a task prior to completing a measure that assessed whether or not they could detect coherence in a series of word triads (the words *beach*, *base*, and *basket* are a triad that are coherent triad with the theme *ball*, whereas *nail, orange,* and, *restaurant* are not). When primed with positive mood, participants were more

accurate at intuiting meaningful patterns on this task (Hicks et al., 2010). Research overall suggests an intimate connection between positive mood and the perception of meaning.

In response to this view, there have been several criticisms of the idea that evaluations of meaning can be reduced to positive affect. For example, many psychologists consider a crucial distinction between hedonia, the achievement of positive feeling or pleasure, and eudaimonia, a more enduring state of well-being and happiness long central to Aristotlean ethical philosophy. In support of this distinction, empirical research finds that affective indices of well-being correlate with, but are distinct from, more cognitive aspects like a feeling of autonomy, satisfaction with one's relationships, and a sense of meaning in life (Linley et al., 2009).

Conclusion

Philosophical interest in meaning ultimately led psychologists to study this phenomenon. Practitioners first employed meaning as a therapeutic framework; an essential element in a healthy comportment to the world. Social and personality psychologists, in contrast, have focused on cognitive and situational factors that give rise to the experience of meaning. These projects converge on the central finding that meaning is ultimately an important indicator of well-being, although controversy remains about its unique role.

See Also

Abraham Maslow
Carl Rogers
Terror Management Theory

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Neuroticism

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Neuroticism is one of the higher-order personality dimensions in psychology. Individuals who score high on measures of neuroticism are more likely to experience negative emotions, such as anxiety, sadness, worry, fear, anger, guilt, and loneliness, and are more susceptible to mood shifts. They also are prone to negative thoughts and show a pessimistic attribution style in explaining life events. In addition, they tend to cope with stress poorly and have trouble controlling impulses and delaying gratification. In contrast, individuals with low levels of neuroticism usually are calm, relaxed, even-tempered, and emotionally stable. They are less reactive to stress and tend to report low levels of negative emotion.

Hallmarks of Neuroticism

One of the hallmarks of neuroticism is over-reactivity on the negative emotions. Individuals high in neuroticism tend to be vigilant to possible negative social feedback and are more likely to interpret the normal stresses and ordinary events of everyday life as threatening. They experience negative emotions more easily and strongly after emotionally arousing events and tend to remain negative for longer periods of time compared to others. Emotional instability is another hallmark of neuroticism. Individuals high in neuroticism show more variability in moods over time. In addition to variability in negative affect, high levels of neuroticism also are correlated with greater variability in positive affect. Interpersonally, individuals high in neuroticism report more ups and downs in social relationships as well and score lower on relationship satisfaction than others.

Theories of Neuroticism

Neuroticism has been discussed in major personality theories and is recognized as one of the core dimensions of personality. Nevertheless, conceptualizations of neuroticism differ somewhat across theoretical frameworks.

The Big Five model of personality is based on the lexical tradition in personality research, which analyzes the natural language of personality descriptions by using statistical techniques such as factor analysis. In this model, neuroticism is described as one of the five broad dimensions of normal personality, along with extraversion, conscientiousness, agreeableness, and openness. Robert McCrae and Paul Costa (1992) suggested that neuroticism subsumes six distinct, more specific traits, including anxiety, angry hostility, depression, self-consciousness, impulsiveness, and vulnerability.

In his hierarchical model of personality, Hans Eysenck discussed Neuroticism-Emotional Stability as one of three super traits, the others being Extraversion-Introversion and Psychoticism (Eysenck & Eysenck, 1975). Eysenck believed that these three traits were highly heritable and that each has identifiable physiological substrates. He further proposed that neuroticism consists of a cluster of narrower traits, including anxiety, irrationality, depression, guilt, low self-esteem, tension, shyness, moodiness, and emotionality, each of which, in turn, subsumes a variety of habitual acts.

Neuroticism also has been discussed in the context of Jeffrey Gray's biological theory of personality (Gray, 1990). Gray proposed two underlying brain systems of personality. One is the behavioral activation system (BAS), which is responsive to reward and regulates approach behavior, and the other is the behavioral inhibition system (BIS), which is responsive to punishment and threats and regulates avoidance behavior. Neuroticism has been found to be strongly and positively correlated with the BIS score, and negatively correlated with the BAS score.

Neuroticism also is linked to the dimension of Negative Emotionality in Auke Tellegen's three-factor model of personality. Tellegen (1985) proposed three higher-order personality dimensions – positive emotionality, negative emotionality, and constraint. Negative emotionality is described as reflecting a disposition to experience negative emotions and be involved in adversarial relationships. High neuroticism is found to be linked to negative emotionality.

Measures of Neuroticism

Neuroticism typically is measured using self-report, although observer data obtained from knowledgeable informants, such as spouses, romantic partners, close friends, parents, or professional assessors, also can be used. Self-report measures of neuroticism usually take one of two forms. One form is self-ratings of single-word trait adjectives (for example, relaxed, moody, anxious). The 100-marker measure developed by Goldberg (1992) is representative of such Big Five measures. Respondents rate themselves on 100 trait adjectives on this measure. Shorter lists have been developed in recent years to measure the Big Five, for example, the 40-word *Balanced International English Big-Five Mini-Markers* uses 40 trait adjectives (Thompson, 2008). The other form is the sentence-length item format. In

this format, respondents rate themselves on statements such as "I have frequent mood swings" and "I am not a worrier." Two commonly used measures in this format are the *Revised NEO-Personality Inventory* (NEO-PI-3, McCrae, Costa, & Martin, 2005) and the *Eysenck Personality Questionnaire-Revised* (EPQ-R; Eysenck & Eysenck, 1975). The NEO-PI-3 consists of 240 items, 48 of which measure neuroticism. The EPQ-R has 100 items, with 24 of these measuring neuroticism. Both NEO-PI-3 and EPQ-R are reported to have good reliability and validity.

Life Span Development and Sex Differences

Life span development of neuroticism, like other major personality dimensions, is characterized by both continuity and change (Caspi, Roberts, & Shiner, 2005). Continuity is reflected in the rank-order stability of neuroticism, the degree to which people maintain their rankings over time on levels of neuroticism relative to their peers. A highly anxious 20-year-old most likely remains more anxious than his or her peers at age 30, for example. A meta-analysis of 152 longitudinal studies found rank-order stability of neuroticism to be moderate from childhood to young adulthood, and furthermore, the stability estimate increases with age and reaches a plateau between ages 50 and 70 (Roberts & DelVecchio, 2000). It has been suggested that rank-order stability reflects both genetic factors as well as stabilizing developmental and environment processes, such as the formation of a mature identity and the niche-building processes whereby people create or seek out environments correlated with their levels of neuroticism (Caspi et al., 2005).

Despite such rank-order stability, mean levels of neuroticism change over time. Both cross-sectional and longitudinal studies demonstrate that neuroticism steadily decreases with age, with the greatest decrease in early adulthood (Roberts, Walton, & Viechtbauer, 2006). Such change is thought to reflect psychological maturation over time and varying social roles and experiences at different stages of life. In addition to this normative change, individuals' levels of neuroticism also can be altered by unique life experiences. Positive experiences can lead to temporary or long-term decreases in an individual's neuroticism, while negative experiences can result in increases in neuroticism.

Among the Big Five personality dimensions, neuroticism shows the largest sex difference, with women scoring moderately higher than men on the dimension. This sex difference appears to be quite universal and has been found consistently in many cultures and nations.

Psychopathology and Life Outcomes

Neuroticism should not be confused with neurosis as neuroticism reflects a dimension of normal personality. High levels of neuroticism do not necessarily indicate the presence of psychopathology. Nevertheless, neuroticism is considered to be the greatest risk factor for psychopathology among the major personality dimensions (Kotov, Gamez, Schmidt, & Watson, 2010). High levels of neuroticism are associated with a wide range of psychological problems, including substance abuse, mood disorders (i.e. depression, bipolar disorder),

anxiety disorders, eating disorders, schizophrenia, posttraumatic stress disorder, as well as borderline and paranoid personality disorders (Ormel et al., 2013). Higher levels of neuroticism also are linked with poorer dietary habits, less physical activity, and poorer physical health. Combined with other personality dimensions, neuroticism has been linked to many adverse behaviors and life outcomes, including risky sexual behavior, pathological gambling, smoking, alcoholism, low life satisfaction and happiness, poorer educational attainment and professional success, as well as divorce.

Biological Influences

Research found that neuroticism shows a moderate degree of heritability, suggesting that individual differences in neuroticism are partly accounted for by genetic differences. Many researchers also suggest that individual differences in neuroticism are linked to physiological differences (Bouchard & Loehlin, 2001; Caspi et al., 2005; Vukasović & Bratko, 2015). For example, Hans Eysenck linked neuroticism to reactivity of the sympathetic nervous system, the system that regulates the body's fight-or-flight response in the face of danger. Eysenck hypothesized that, compared to others, people who score high on neuroticism have a sympathetic nervous system that reacts more strongly and negatively to environmental stressors. In recent years, neuroscience and molecular genetic research have focused on discovering connections between neuroticism, on the one hand, and specific genes, neurotransmitters, and neural circuits on the other (Canli, 2008). For example, neuroticism has been linked to variation in genes such as 5-HTT, the gene that codes for the serotonin transporter. Neuroticism and traits associated with neuroticism also have been linked to differences in activation in the amygdala and hippocampus regions of the limbic system, as well as in the medial prefrontal cortex.

See Also

Anxiety
Behavioral Inhibition/Activation, Personalilty Correlates of
Big Five
Biological Models of Personality – psychophysiological
Depression
Eysenck Giant 3
FFM and Facets
Personality Development

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Narrative Approach

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Introduction

The narrative approach to personality psychology involves understanding how the individual's self-concept can be conceptualized as an overarching life story, or narrative. These life stories determine how we behave, and how we relate to the people around us. Our stories also determine how we understand our previous motivations, navigate our current environment, and establish an overarching sense of unity and consistency in our behavior. Though a narrative approach to personality has only recently found a mainstream audience, many philosophers and early psychologists laid the groundwork for this approach over the last century.

History and Origins of Narrative in Psychology

One influential idea was William James' theory of the relationship between "I" and "me" (1890). According to James, when individuals say "I" they refer to the aspect of the self that thinks and makes decisions, whereas "me" refers to the aspect of the self that appears to move through space and time. This idea influenced scholars to think about storytelling as part of the self-concept, and considerations of the self as the object of one's thoughts and experiences (Hermans et al., 1992). Another strong influence was Lev Vygotsky, whose work on the relationship between language and the development of thought, and the importance of symbolic meaning and other cultural products in shaping the self through language, influenced later work on the how the self and our knowledge of the world is constructed by stories and narratives (Bruner, 1991; Vygotsky, 1964).

In the psychoanalytic tradition, people's stories, even those that emerge in dreams, are believed to be meaningful aspect of the self (Freud, Strachey, & Freud, 1953). However, modern theorists point out that psychoanalysis lay relatively dormant for some time after the early twentieth century, and furthermore, that even in this era scholars did not attempt to think

about humans as storytellers – building and relaying their own life stories (McAdams, 2001). Scholars argue that the first theory to explicitly articulate this notion was Silvan Tomkins' script theory (1978), which posits that individuals are dramatists, organizing their lives according to scenes and plots (McAdams, 2001). In this model, people's behaviors and beliefs are understood to be rule-based, adhering to internalized scripts that guide behavior (Tomkins, 1978). These theorists laid the groundwork for life stories, and how our identities are constructed through narrative.

Narrative Theories of Personality

Life Stories

Today, there are many prominent scholars who take a narrative approach to personality. McAdams (1985) developed an influential theory of life stories, which proposes that an individual's life story is an internalized, evolving structure that helps people organize their experiences such that they have a sense of unity and consistency. The theory suggests that individuals have a life narrative that is complete with scenes, characters, plots, and themes. Having a coherent and internally-consistent life narrative allows individuals to impose meaning upon the present, navigate the future, and reconstruct their pasts (McAdams, 1985).

Three-Level Framework

One question that emerges is how personality can include a narrative construction of the self, but also other aspects of personality that are more familiar to personality research (e.g. traits and motivations). To address this question, McAdams presented a three-level framework (1995, 2001) which posits that personality can be conceptualized as three distinct elements. At the most basic level (Level I) are *dispositional traits*. Such traits are global, unchanging, and relatively stable across situations; they account for an individual's most basic tendencies and consistently predict thoughts, behaviors, and feelings across a wide variety of contexts. Perhaps the best-known exemplars of dispositional traits include those captured by the Big Five (i.e. openness, conscientiousness, extraversion, agreeableness, neuroticism), though other traits such as depressiveness, sensation seeking, or masculinity/femininity are similarly descriptive of Level I. At the next level in personality (Level II) are *characteristic adaptations* (or *personal concerns*). Unlike dispositional traits, characteristic adaptations are dependent upon context; they interact with time, place, and social roles to influence one's response to a given situation. Examples of characteristic adaptations include personal goals and motives, defense mechanisms and coping strategies, mental representations of self and other, values, and beliefs, developmental tasks, and domain-specific skills and interests. Yet as McAdams (1995, 2001) notes, these two descriptive levels of personality may not provide a full description of personality. For most adults, especially those living in societies which place emphasis on the self (e.g. contemporary Western society), identity is primarily constructed through the telling of life stories. Thus, the final level of personality (Level III) is the level of identity as a life story.

Level III encompasses the various ways in which individuals seek to construct their life narrative in a way that provides meaning, unity, and purpose. While one person may convey their life story as a comical narrative, another person may choose to model their life story as a dramatic saga. Such storytelling strategies are necessarily reflective of individual identity and personality. The three-level framework maintains that each of the three levels of personality are not derivative of one another, but rather offer their own unique conceptualization of individual differences. Each level may be examined to gain meaningful insight into personality. Whereas dispositional traits present an initial sketch of personality and characteristic adaptations add some detail, life stories integrate these two levels and create meaning (McAdams, 2001).

Process Model of Self-Development

Another model that attempts to integrate storytelling and narrative with the larger self-concept is McLean, Pasupathi, and Pals' (2007) process model of self-development. They propose that the act of storytelling is essential to the creation and maintenance of the self. Specifically, telling a *situated story*, or an autobiographical description of their thoughts and feelings in a particular situation, is an act of expressing and maintaining one's self-concept, but may impact one's self-concept and life story. This model provides insight into how one's narrative identity develops and is maintained. Over time, the act of telling stories leads to the development of a life narrative, which then influences one's future decision-making and subjective interpretation of events, and is theorized to even affect other aspects of personality such as self-esteem (McLean et al., 2007). In this sense, our stories can shape our identities, and in turn, our identities dictate the particular aspects of the stories we tell in any given situation.

Dialogical Self Theory

One particularly influential idea is the Dialogical Self Theory (DST; Hermans, Kempen, & Van Loon, 1992). According to this theory, one's self-concept is made up of many different versions of oneself; for example, the self includes ideas about the person one might become, and the person one might be afraid of becoming (Hermans et al., 1992). Different versions of the self are capable of being in disagreement with each other, and the self-narrative can be viewed as a collection of each self, occupying different positions in space and time. These "many selves" form a complex, narratively-structured self-concept (Hermans et al., 1992). Under this model, individuals are able to take an outside perspective on their own behaviors and motivations, having many different vantage points depending on the version of themselves that they are currently occupying. It also gives them the opportunity to view themselves as protagonists in their own life narrative (Hermans et al., 1992). The benefit of this approach is that the self can be understood as changing throughout time, and in different circumstances, and yet it can still adhere to an internally-consistent narrative structure. Another benefit is that it is more descriptive of personality outside of a Western cultural context, where having "many selves" and even imaginary characters in disagreement with each other is a common occurrence. On the other hand, self-contained individualism is a uniquely Western way of structuring the self (Hermans et al., 1992).

Narrative Therapy

One way in which taking a narrative approach has benefited the field more generally is through its influence on narrative therapy. Narrative therapy was developed by White and Epston (1990) with the aim of helping individuals reframe their lived experiences to create a more positive self-narrative. The process involves encouraging individuals to find new meaning in their experiences so that they are more reflective of the type of personal life story that people would like to author (White & Epston, 1990). Narrative therapy has been informed by narrative theories of personality in many ways. For instance, the narrative approach to personality compels therapists to consider how the process of re-framing one's experiences can affect not only their well-being, but also their behavior, and perhaps even their personality more broadly. This suggests to therapists that they should consider more closely the kinds of self-narratives that were deemed positive (e.g. the extent to which these narratives should be "truthful," internally-consistent, or reasonably representative of reality), with a fuller appreciation of the consequences of re-framing one's life story (Angus & McLeod, 2004; McAdams, 1996).

Criticism

Critics of a narrative approach to personality challenge the assumption that it is natural for people to understand the self in terms of narrative. The narrative style that many scholars take is argued to be a Western style of organizing the self-concept, whereas sequential narrativization may not be a customary and productive means of self-expression and conceptualization for people from diverse cultural backgrounds (Polkinghorne, 1996). Other critics argue that some narrators and audiences are limited in their capacity to construct and build on elements of narrative due to restrictions imposed on them by their social positions, affordances of linguistic codes in which they operate, and social conventions and dominant discourses of the settings in which stories are lived and told (Pavlenko, 2002). For this reason, any narrative approach to psychology must be attentive to the fact that certain narrative styles are privileged over others, and therefore a narrative approach is subject to the influence of power structures and may even lead to the disenfranchisement of certain individuals (Pavlenko, 2002).

Conclusion

The narrative approach to personality allows psychologists to understand and explain the relationship between storytelling and self-concept. It also frames the individual as ever-changing and evolving. On the other hand, this approach has many challenges, such as the degree to which forming a narrative identity can be understood as a universal human practice. Nevertheless, it has many implications for the study of personality, and informs related areas of inquiry such as therapy and counseling. The narrative approach to personality represents an exciting direction in psychology, and will likely shape the field for years to come.

See Also

Dan McAdams

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Openness

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Definitions of Openness

Openness to Experience is one of the major dimensions of personality in the Five Factor Model (or "Big Five"). Despite its inclusion in the Big Five framework, Openness is the most unreliable and difficult dimension to capture because of its broad, loosely defined structure. At its most concrete level of description, Openness captures the individual who is a creative and divergent thinker, frequently enamored by aesthetic experiences (e.g. art, music, beauty). At its broadest level of description, Openness captures the mystical person prone to experiences of *déjà vu*. In general, highly open individuals are intellectually curious, have rich imaginations, experience a broader range of emotions, and actively seek out diverse and varied experiences. In contrast, closed individuals are conventional, cognitively rigid, comfortable with routine, and uninterested in novelty (McCrae & Sutin, 2009).

Theoretical Background of Openness

The Openness dimension was developed from a rich theoretical tradition of related, but ultimately separate, factors of personality (McCrae & Costa, 1997). Historically, Openness has also been referred to as *Culture*, *Intellect*, and *Intelligence*. Although Openness is partly defined by intellectual endeavors, it is broader than the educated sophistication associated with *being cultured*. To some extent, intellect reflects the cognitive ability component of Openness, but Openness is more than being *able* to analyze and think flexibly – it is the *enjoyment* of doing so across a range of diverse and varied topics. Moreover, there are other traits of the open individual that are inherently non-cognitive, including aesthetic sensitivity and intense, emotional variety. While there is some overlap between the Openness dimension and general factor intelligence, correlations between the two are either weak or modest, suggesting they are not equivalent constructs. More contemporary theories characterize Openness as an intrapsychic personality dimension reflecting "the breadth, depth,

and permeability of consciousness, and in the recurrent need to enlarge and examine experience" (McCrae & Costa, 1997, p. 826).

Measurement of Openness

Openness has been measured in different ways, primarily as a function of two relatively independent traditions within personality theory and research. The lexical tradition suggests human personality is reflected in the vast descriptions of trait adjectives used in natural language. When measuring personality, early lexical traditions included a series of single-trait adjectives to which individuals respond. For Openness, participants indicate the extent to which trait adjectives such as "imaginative" and "intellectual" describe the self. In contrast, the questionnaire tradition of personality measurement uses full sentences that place trait adjectives within context. Participants indicate the extent to which they might "Enjoy wild flights of fantasy" or "Carry the conversation to a higher level." Together, all questionnaire items from this Openness dimension are separated within six subdimensions, or *facets*: Openness to Ideas, Fantasy, Aesthetics, Actions, Feelings, and Values. More recent advances in personality measurement have created somewhat of a hybrid of both the lexical and questionnaire traditions. With a shorter scale, the Big Five Inventory uses short, contextual phrases that also include trait adjectives. Example Openness items include, "I see myself as someone who... likes to reflect, play with ideas; ... has an active imagination." All three approaches to measuring Openness (and the Big Five in general) are highly correlated and show substantial factor convergence.

Stability vs. Change of Openness

Openness to Experience is a strongly heritable dimension of personality, and the covariation among facets is explained at the genetic and phenotypic level. Openness is also remarkably stable across time (Terracciano, Costa, & McCrae, 2006), although other evidence suggests there are consistent patterns of mean-level change throughout the lifespan. Openness increases sharply from adolescence to early adulthood, increases slowly throughout middle adulthood, and ultimately decreases in old age. When personality changes throughout the lifespan, it often does so as a function of changes in social roles, norms, or experiences (Roberts, Walton, & Viechtbauer, 2006). Self-ratings of Openness have been shown to increase due to experiences with other cultures among college students, mystical experiences with hallucinogens among adults, and cognitive training in older adults. Future research is needed to examine whether these and other effects point to an influence of one's social context on shifts in Openness (either temporarily or across time).

Gender and Cultural Differences in Openness

At the factor level, research suggests there are no consistent gender differences in Openness. However, more nuanced analyses at the facet level have found gender differences in Openness that are generally consistent with gender stereotypes. Females typically score

higher on the Openness to Feelings facet, whereas males score higher on the Openness to Ideas facet. Mean levels of Openness also seem to vary in systematic ways across countries and cultures. Though between-culture differences are generally smaller than within-culture differences, self-report and observer-rating studies show French-speaking Switzerland, German-speaking Switzerland, Germany, Austria, and Serbia score highest in mean levels of Openness, whereas Croatia, Spain, Hong Kong, Malaysia, and India score lowest in Openness. Mean, or aggregate, levels of personality may reflect the culture's *ethos*, such that cultures higher in Openness are generally progressive, humanistic, and free-thinking; and those lower in Openness are generally conservative, traditional, and religious (McCrae & Sutin, 2009). Some have argued socio-cultural environments shape the personality of its inhabitants. Given the strong genetic influence on personality, others have suggested the traits of collective people ultimately shape their own culture. More research is needed to address this question.

Micro-social Influences of Openness: Mental Health, Well-Being, and Interpersonal Relationships

Openness has several micro-social influences on the individual, including mental health, well-being, and interpersonal relationships. The influence of Openness on mental health is not as obvious as other dimensions of personality, such as Neuroticism and Extraversion. Some features of Openness may contribute, for example, to schizoid/schizotypal personality disorders (e.g. dull, blunted affect; eccentric fantasies) or obsessive-compulsive personality disorder (e.g. extreme cognitive or behavioral rigidity). However, empirical evidence generally does not support a relationship between Openness and specific psychopathologies. Its influence is relatively weak (compared to other Big Five dimensions), but Openness does have an association with more general outcomes such as subjective well-being. Open individuals tend to be happy, have a high quality of life, and frequently experience positive but not negative affect. Contemporary theories, however, suggest open individuals have a vast emotional repertoire, including not only frequent and intense positive emotions but also negative ones. Future research might look to further investigate the structure of the Openness to Feelings facet and its association with both positive and negative affect.

Openness also exhibits a characteristic pattern of influence on interpersonal interactions and relationships. Open individuals are often perceived by others as humorous, verbally fluent, and expressive, and first impressions of Openness are particularly difficult to change because people assume such traits stem from ability rather than motivation. When meeting new people or developing acquaintances, open individuals tend to be more other-focused (as opposed to self-focused). They visually attend to their interaction partners and spend little time talking about themselves. Closed individuals expect interpersonal interactions to be normative and conventional, and they become uncomfortable or irritated when these rules are violated.

People often self-report desiring a romantic partner that resembles them most on the Openness dimension, but research suggests personality is typically uncorrelated between romantic partners. There are, however, several relationship benefits experienced by highly open individuals, including greater relationship satisfaction, more effective

communication styles, and the ability to target and resolve conflict when it arises. In contrast, closed individuals tend to avoid relationship conflict and employ distancing strategies (often to the detriment of the relationship). In family settings, open parents are more egalitarian in sharing parental roles, whereas closed parents are more hierarchical and differentiate parental roles according to traditional gender roles. Open parents typically respond to their children with warmth and allow them to have self-direction; closed parents expect obedience and rule-following (McCrae, 1996; McCrae & Sutin, 2009).

Macro-social Influences of Openness: Social Attitudes, Political Ideology, and Values

Of the Big Five dimensions of personality, Openness shows the strongest and most consistent pattern of influence on macro-social attitude and belief structures. Highly open individuals value unconventional, open-minded thinking and express tolerance of diverse viewpoints, people, and cultures; closed individuals prefer tradition, conventionalism, and have a penchant for loyalty to the ingroup. Openness – at the factor level and across most of its facets – is consistently and negatively correlated with generalized prejudice (e.g. gender, sexual orientation, race/ethnicity). Recent evidence, however, suggests this well-documented relationship between Openness and prejudice depends on the perceived (un)conventionality of the target group. Those high in Openness prefer more egalitarian societies, whereas those low in Openness are found to be higher in right-wing authoritarianism, a broad ideology in which security, order, and ingroup cohesion function to defend against a world seen as dangerous and threatening. These broad, underlying social-ideological attitudes typically manifest themselves at the level of political affiliation and voting behavior. Of the Big Five dimensions, Openness is strongly and consistently related to political orientation. Those high in Openness tend to be liberal and vote for the Democratic Party (United States), whereas those low in Openness tend to be conservative and vote for the Republican Party (McCrae, 1996; McCrae & Sutin, 2009). At the most basic level of values, Openness is strongly associated with self-direction (creativity, independent thought), stimulation (excitement, novelty in life experiences), and universalism (global equality, protecting the environment).

See Also

Big Five
Clinical Applications of Cognitive-Behavioral Theory of Personality
Culture and Personality
Health and Personality
Personality Stability and Change Over Time
Personality Stability Over Time
Revised NEO-Personality Inventory (NEO-PI-R)

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Optimism/Pessimism Carver and Scheier Theory

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> *Man often becomes what he believes himself to be. If I keep on saying to myself that I cannot do a certain thing, it is possible that I may end by really becoming incapable of doing it. On the contrary, if I have the belief that I can do it, I shall surely acquire the capacity to do it even if I may not have it at the beginning.*
>
> **(**Mahatma Gandhi)

> *Christopher Robin: "There now. Did I get your tail back on properly, Eeyore?" Eeyore: "No matter. Most likely lose it again anyway." (Winnie the Pooh and the Honey Tree)*

Conceptualized

Claire is in good health, both mentally and physically. She has an upbeat disposition, looks on the bright side of situations, and is positive about things going her way (much like Mahatma Gandhi's quote). Joseph, on the other hand, is constantly stressed at work and in his home life, and has physical issues with his lower back. When faced with uncertain situations, he rarely expects positive outcomes, is often dour, and thinks negatively about the future (much like the character Eeyore noted above from *Winnie the Pooh and the Honey Tree*).

In the above examples, Claire is an *optimist*, exuding an air of optimism in her life and surroundings, while Joseph is a *pessimist*, conveying an air of pessimism as he moves through life. When we speak of optimism/pessimism, what exactly are we referring to? How might optimism/pessimism influence well-being and mental/physical health outcomes? Claire's health is superior to Joseph's, suggesting a possible relationship between being an optimist/pessimist and one's mental and physical health. Based on research, is there such a relationship?

The concept of optimism (and pessimism) is a prevalent research topic in the fields of health psychology and positive psychology, both in terms of direct research on the topic,

and in terms of a measureable dispositional trait for applied research. However, long before its formal establishment in the 1980s (Scheier & Carver, 1985), the concept of optimism/pessimism was part of the everyday or naive psychology lexicon (see Heider, 1958, for a discussion of naive psychology), where individuals strive to make sense of the world and their surroundings and thus create their own theories of cause and effect. To help make the world a predictable and pleasant place, we might view those who are optimistic as appearing more happy and healthy, while those who are pessimistic are viewed as complaining and ailing. To the average person, optimistic individuals are more pleasant to be around and seem more empowered ("Claire is so optimistic and positive – what a joy to be around!"), while those who are pessimistic may seem unhappy and may not be one's first choice to socialize with ("Joseph is such a downer – it's such an effort to hang-out with him").

Beyond everyday or naive psychology conceptualizations, in the 1950s social/behavior science formally began evaluating concepts related to optimism/pessimism, with research addressing issues such as psychological well-being and life satisfaction. Decades later, more formal work on the topic was offered by Scheier and Carver (1985), who directly conceptualized optimism as a dispositional trait. Theoretically, the concept of optimism grew out of Scheier and Carver's model of behavioral self-regulation, which was influenced by general expectancy-value theories in psychology (see Scheier & Carver, 1988, for a brief overview of their model of behavioral self-regulation). Simply put, individuals who overcome adversity in goal obtainment are those who expect to reach their goals. As long as there is a positive expectancy for success, the individual will continue to strive for goal attainment. Scheier and Carver summarize a number of studies that illustrate the effects of favorable expectancies toward a desired outcome. As they summarized their findings, they ultimately found that what they were developing was a framework for dispositional optimism.

Optimism is also viewed as triggering active coping strategies. In particular, optimism positively influences problem-focused coping (i.e. motivation to engage the problem, confidence to solve the problem), and seeking social support behaviors (i.e. support from family, friends, and other social ties, inclusive of tangible, informational, and emotional support). It also enhances a sense of personal control.

Life Orientation Test (LOT and LOT-R)

Much of the popularity of the optimism stems from Scheier and Carver's *Life Orientation Test* (LOT; Scheier & Carver, 1985). Prior to 1985, Scheier and and Carver were in the midst of developing their model of self-regulation. As they aggregated their research and started to make progress on the concept of optimism, an assessment tool was required. As they note in 1985, "we found ourselves wanting a measure of what we take to be dispositional optimism" (Scheier & Carver, 1985, p. 223). Thus, the LOT was developed as a way to assess a generalized sense of optimism.

Although widely used, there were a number of criticisms of the LOT. In particular, there was a need to make the LOT more predictive of outcomes, and to insure items focused on expectations of positive outcomes. After these few changes, the LOT-R (Life Orientation Test – Revised; Scheier, Carver, & Bridges, 1994) was published. The LOT-R has strong psychometric and predictive qualities, and is widely used today to assess optimism.

Predictive Qualities

Optimism has been shown to be predictive of both mental and physical health outcomes (i.e. biopsychosocial outcomes). Regarding mental health, optimists are less likely to report anxiety, depression, and are less neurotic than those who are pessimists. Optimists are more likely to report higher levels of self-esteem, seek social support more often, and have a greater sense of personal control. Regarding physical health, optimists report fewer health symptoms and less pain, increased levels of mortality and survival, more positive physiological markers, and better pregnancy and cardiovascular outcomes (to name a few). Together, these findings, especially mortality and survival rate increases, are extremely important as they reflect behavioral health outcomes and quality of life issues (see Kaplan, 1990, for a discussion concerning quality of life outcomes).

Current Status

What can we conclude about the personal disposition of optimism (and pessimism)? Is the concept useful for applied research, and how does it impact individuals? Currently, optimism may be considered a dispositional trait, accurately predicting a host of positive outcomes for optimists, and negative outcomes for pessimists. As of this writing, optimism and pessimism – as concepts, cognitive expectancies, or viewed more accurately as dispositional trait(s) – are well established.

The added value of being optimistic in terms of both mental and physical health outcomes is unequivocal. In addition to the positive outcomes noted earlier, optimists report in some instances better immune response, fewer upper respiratory illness symptoms and influenza, better coping with chronic ailments, and have greater levels of well-being and hope. Though some downsides have been noted (e.g. greater short-term stress when goals are thwarted; Sergerstrom, 2006), the bounty of positive health and well-being outcomes clearly underscore the advantages of being an optimist over being a pessimist. Indeed, in sharp contrast to findings noted for optimists, outcomes associated with pessimists are rather negative. For example, one dire finding is that pessimists tend to have higher mortality rates (e.g. cancer death rates, death due to old age). In addition, higher rates of morbidity are also noted, including higher blood-sugar levels (a marker for diabetes), hardening of the arteries (related to atherosclerosis), greater reported physical ailments, pain, and fatigue, and worse physical functioning.

Although viewed as a personality disposition, there is some research suggesting optimistic thoughts/attitudes can be manipulated, with optimism actually increased to yield better health outcomes. For example, Mann (2001) conducted a longitudinal study on HIV-infected women to assess if optimistic writing could positively influence their HIV-drug adherence. Participants were asked to write optimistically about a "future" where their HIV-drug regimens were simplified by taking just one medication a day (typically, HIV-infected individuals have complicated drug regimens, taking multiple drugs each day). Participants at the start of the study who scored low in optimism (assessed with the LOT) actually increased their dispositional optimism score by the end of the study, and reported increased drug adherence and less negative affect regarding medication side-effects. This suggests a possible fluidity or at least some relationship between directed optimism and

trait optimism (possibly analogous to what has been termed "little and big" optimism; Peterson, 2000) which has yet to be fully explored, but again underscores the import of optimism for health and well-being.

Overall, Scheier and Carver's work remains robust, and use of the Life Orientation Test-Revised (LOT-R) is widely prevalent. For example, a number of meta-analyses have been conducted on the effects of optimism and pessimism (see Further Reading section), underscoring the established use of the concept. In addition, a *PUBMED* search from the year 2000 through 2016 shows the term "Life Orientation Test" noted over 200 times – thus, dispositional optimism and its measurement is popular among social/behavioral scientists, and is an indelible contribution to a better understanding of individual differences and dispositional traits.

See Also

Goals and Motives
Personality and Health
Personality and Longevity
Personality and Well-Being
Optimism/Pessimism, Assessment of
Optimism/Positivism vs Pessimism/Negativism

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Personal Projects

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Origin and Definition

Personal projects are the fundamental building blocks of our daily lives. They can be diverse in nature, ranging from apparently trivial pursuits (e.g. take the dog for a walk) to transformational undertakings (e.g. help my wife rediscover her sense of purpose). Little (1983) first introduced personal projects as a theoretical response to the integrative challenges of the person-situation debate. Personal projects are a tractable unit of analysis in which features of both individuals and their embedding contexts interact as dynamic influences on individuals. The corresponding methodology, personal projects analysis (PPA), captures rich information and "thick" descriptions of the internal motivations and external hindrances and affordances of human action. PPA has made significant contributions to the social sciences (e.g. personality, social, developmental, and organizational psychology) and fields ranging from rehabilitation therapy to moral philosophy (Little, 2014; Little, Salmela-Aro, & Phillips, 2007).

Personal projects are formally defined as "extended sets of personally salient action in context" (Little, 2007, p. 25). Conceptually, personal projects are personal action constructs (PAC units) that occupy a middle level of analysis in hierarchical models of personality (Little, 1999, 2006; Little, Lecci, & Watkinson, 1992). Another distinctive feature of personal projects is their roots in a social-ecological model of human development (Little & Ryan, 1979), depicted in Figure 1. The social-ecological model illustrates the processes by which well-being and quality of lives are influenced by dynamic and stable features of both persons and environments. A central postulate of this model is that personal projects serve a critical role as a transactional conduit or "carrier unit" of person and environments, and can therefore, directly and indirectly enhance well-being and the quality of lives.
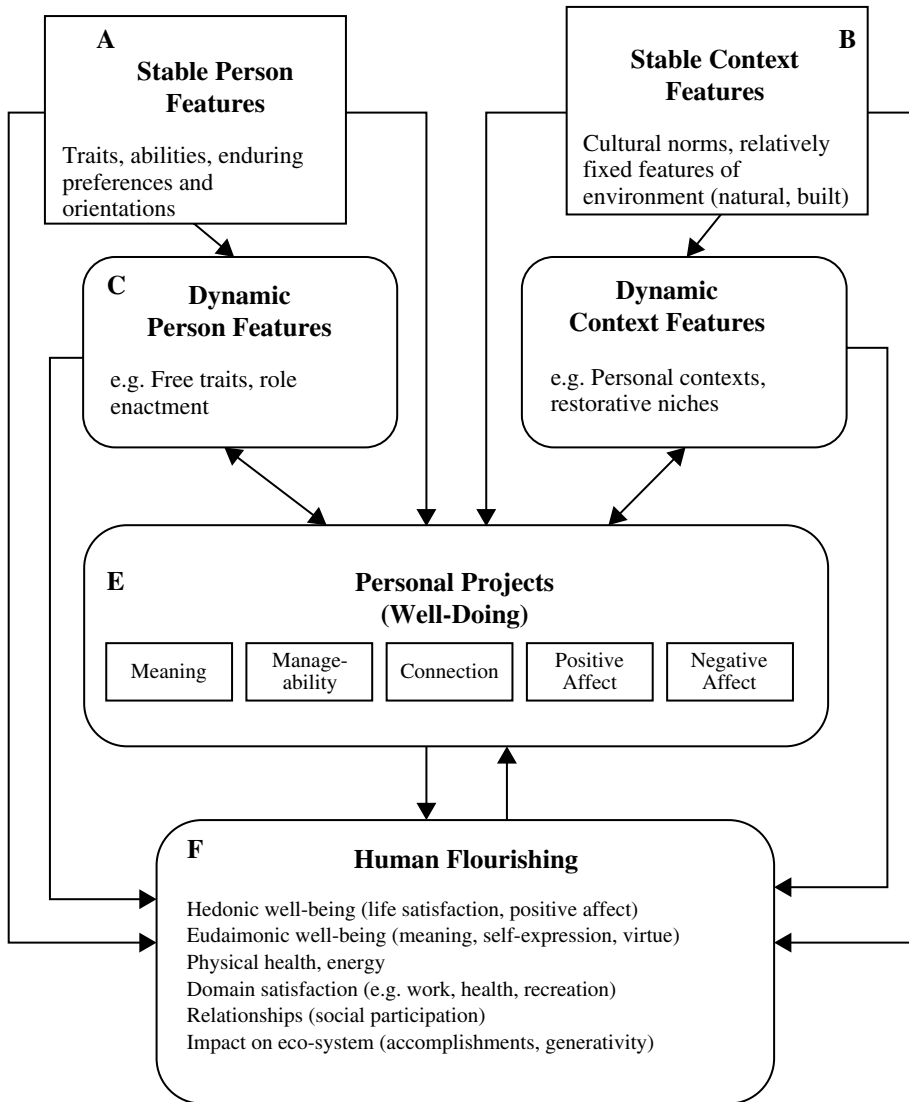
Figure 1 Social-ecological model of human development (B. R., Little, 2014. Well-doing: Personal projects and the quality of lives. *Theory and Research in Education*, *12*, 329–346).

Measurement of Personal Projects

PPA is a multi-modular instrument that assesses the content, appraisal, and impact of personal projects via four modules (Little & Gee, 2007). Its uniqueness lies in its seamless adaptation to the researcher's line of inquiry and theoretical focus. PPA is typically administered in written form (i.e. printed or online), although it can be adapted to an interview format for clinical and/or intensive research purposes.

Project Elicitation

In the first module, individuals are presented with examples of personal projects and prompted to list their ongoing or planned personal projects. Typically, participants list around 15 projects with those high in openness to experience tending to generate more. The content of listed projects can be analyzed using traditional content and categorization analysis. Eight categories from different domains of activity are frequently discerned: e.g. academic or work (e.g. complete my assignment), interpersonal (e.g. call mom on Skype), intrapersonal (e.g. be a more giving person), leisure/recreational (e.g. meet Terry for coffee), health (e.g. get fit), maintenance (e.g. file paperwork) and others. Beyond project content, personal projects can be analyzed at the level of the phrasing and syntax in which they are expressed. Indeed, linguistic analyses have found that personal projects expressed as "trying to" or "avoiding" were less likely to be successful and associated with lower well-being (Chambers, 2007).

Project Appraisal

After listing their projects, respondents select a subset of their projects (usually 10), and appraise each project on a set of dimensions (rated on a 0–10 scale). In the original version of PPA, the appraisal matrix consisted of 17 standard dimensions and two-open ended questions on "with whom" and "where" the project is carried out. These dimensions were drawn from important theoretical constructs in psychological research. Over time, novel theoretical propositions and factor analytic procedures have led to the emergence of five major themes from these dimensions: (1) Meaning (e.g. self-identity, value-congruence), (2) Manageability (e.g. control, efficacy, progress), (3) Connection (e.g. visibility, importance as viewed by others, support from others), (4) Positive Affect and (5) Negative Affect. Cumulative research evidence suggests that people experience greater well-being when their projects are meaningful, manageable, connected with others, and associated with more positive affect than negative affect (Little et al., 2007).

A key foundational feature of PPA is its modular nature. Unlike traditional psychological assessment, PPA adapts to the social ecologies of its respondents and encourages the use of *ad hoc dimensions* to measure a theoretical construct of interest, a specific individual or eco-setting. Over the last 30 years, hundreds of *ad hoc* dimensions have been implemented in studies of diverse groups such as adolescents, middle-aged men, senior executives, pregnant women, entrepreneurs, college students, anorexic patients, and post-stroke patients. These ad hoc dimensions are frequently unique predictors of well-being and human flourishing. As in the elicitation module, PPA enables numerous analytic procedures in the appraisal matrix. Researchers can conduct both idiographic and normative analysis. In idiographic analysis, researchers can examine the correlations between two appraisal dimension scores and average the scores across all personal projects to provide a mean score representing the global state of a person's personal project system. This information can be aggregated to normative and comparative levels as mean scores can examine the relation between project-level between-person variation and other characteristics (e.g. personality traits).

Cross Impact-Matrix, Joint Cross Impact-Matrix, and Hierarchy Modules

The Cross-Matrix and Joint-Cross Matrix are an optional set of modules that offer researchers deeper insight into the impact of personal projects. By calculating the impact each project has on others in the matrix, the degree of conflict or complementarity can be assessed. The Joint Cross Impact-Matrix follows a similar logic to the Cross Impact-Matrix except it examines the impact of another person or group on an individual's project system (Little & Gee, 2007).

Personal projects are a middle-level unit, occupying the position below molar-level superordinate goals and values, and above molecular-level schedulable acts (Little, 1999). The hierarchy module addresses the linkages between these three levels. Using a laddering form, individuals are repeatedly asked why they engage in each of their projects and this iterative process continues until the answer becomes an end in itself. Each answer is considered a rung on a ladder so that the number of ladder rungs measures of the distance of a project from a schedulable act ("'How' laddering") or over-arching goal ("'Why' laddering"). The hierarchy module explains the "meaning-manageability trade-off" quandary; why some projects may be easily achievable as acts, but lack meaning and others carry vast personal importance, but are unmanageable (Little, 1998).

Representative Research

Since the 1970s, the body of empirical evidence on personal projects has been steadily growing. The majority of data is stored in the Social Ecological Assessment Databank (SEAbank), an electronic database that is updated periodically. Much of the research has examined the effects of project variables (e.g. project categorization, content, appraisals, and dimensions) on well-being. Research has confirmed that affective and cognitive features of personal projects and the sustainable pursuit of core projects contribute to well-being and human flourishing (Little, 2016). Another segment of research has illuminated the pathways between key elements in the social-ecological model of human development and project pursuit. Research has established direct links between the Big-Five traits and project appraisals, with Conscientiousness as the strongest predictor of positive project appraisal and Neuroticism linked to negative project appraisal (Little, Lecci, & Watkinson, 1992). Personal projects also serve as a vehicle for the influence of traits on well-being. A sense of efficacy in one's personal projects (i.e. a key dimension in Manageability) mediates the link between Neuroticism, Openness to Experience, Conscientiousness, and Agreeableness on subjective well-being (Albuquerque et al., 2013).

Further examples of the linkages with the social-ecological model include the effects of contexts and societies on project pursuit. Interdisciplinary studies have shown that project pursuit can be thwarted by environmental features (e.g. noise annoyance) but advanced by the perceived supportiveness of the environment. When viewed in the context of the social-ecological model, human flourishing comprises the sustainable pursuit of core personal projects (Little, 2015).

New Directions in Theory, Methodology and Application

Research on the social ecology of personal project pursuit is expanding in several areas. The integrative role of personal projects as analytic units in both psychology and philosophy is being actively studied (e.g. Betzler, 2013; Little, 2014).

There are also increasing calls for integrative and explanatory theories within personality psychology. One promising focus would be on tracking the links between personal project theory and "whole trait" theory that views the manifestation of traits as personality states (Fleeson & Jayawickreme, 2015). Variation in personality states is also conceptually linked with *free-trait theory* that is central to the social-ecological model (Little et al., 2007). This theory proposes that individuals enact certain traits (i.e. "act out of character") to strategically advance the pursuit of their core personal projects, which can both promote but also hinder well-being. Although empirical evidence has provided initial support for free-trait theory, expanded studies are underway. These studies offer deeper insight into the specific categories and content of projects that propel individuals to enact certain traits, and the effects of acting out of character on outcome measures beyond well-being (e.g. productivity and job performance).

Finally, rapid technological advances in the implementation and utilization of psychometric testing on social media and virtual platforms are spurring new, creative ways of presenting PPA on novel platforms. Similarly, there are great leaps anticipated in the emergence of newly-designed PPA tools that are applicable in organizational, counseling, and community contexts. With widespread changes to traditional performance management, personal projects analysis assumes increasing importance in performance feedback and personal development discussions. As PPA provides a means of changing how individuals construe and manage their contexts, PPA tools provide a way of both explaining and enhancing the quality of human lives.

See Also

Personality and Well-Being

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Personality and Language

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Characterized and Conceptualized

Language, broadly defined, includes both the words people use and the ways in which they are used. Research on language and personality has found that various patterns in a person's language can reveal a great deal about their underlying psychological composition. In other words, each person's unique language patterns contain embedded clues about their stable individual characteristics. Psychological measurements of language tend to exhibit robust, trait-like properties that have been widely used as a mode of exploring personality and other psychological constructs.

The increasing use of quantified language in personality research is principally due to the consistent relationships established between the two domains. By analyzing patterns in language samples (e.g. essays, speeches, interviews, recorded conversations, etc.), researchers are able to establish an individual's *linguistic profile,* a cluster of unique language patterns that is predictive of psychological composition. This linguistic profile can be used to understand and assess personality by conducting research on linguistic tendencies that correlate with, or are indicative of, personality across various research designs. For example, language patterns can vary as a function of depression, social status manipulation paradigms, or self-reports of personality. Relatedly, language-based measures are often used to predict and understand personality-relevant variables of interest, such as demographics (e.g. sex, age, level of education), behaviors (e.g. cigarette smoking, aggression), and other individual differences (e.g. decision-making patterns, trait affect, motivational processes).

Research has found that language is a valid and reliable way to explore personality, individual differences, and lower-level processes that drive such constructs. Several empirical studies have demonstrated that the various ways in which people express themselves through language are stable and consistent within an individual across time and context.

The most common way that personality research is conducted using language measures is by establishing statistical relationships between quantified measures of language use and other measures of personality. Studies in this area often rely upon traditional measures of personality (e.g. self-report measures, behavioral outcome measures) and have found that various categories of language show consistent relationships with such personality measures, suggesting that language can serve as an unique mode of analyzing personality (sometimes referred to as Language-Based Assessments, LBA, or L-data). Furthermore, research has also shown that language-based measures of personality are able to capture personality characteristics that are not easily captured by self-report measures due to factors such as self-report biases and accessibility. This is partly due to the fact that language production involves several automatic, low-level generative processes into which humans lack accurate self-insights.

The ways in which language can be measured/quantified for use in personality research are diverse, ranging from the rate at which a person uses purely syntactic categories of speech to words with inherent semantic value, average word length, and frequency of verb tenses, among other approaches. The comprehensive analysis of language includes quantifying both a person's language *style* in addition to their language *content*. Language *content* represents the "what" of a language and primarily consists of semantically-laden words (e.g. emotion words, social words). Language *style* primarily consists of function (i.e. syntactical) words (e.g. prepositions, conjunctions). Language content typically include words classified as nouns, regular verbs, and most adjectives and adverbs – words that generally have meaning even without context, such as "happiness" or "family." Function words primarily include pronouns, prepositions, articles, conjunctions, and auxiliary verbs, among other classes of linguistic particles – words that do not possess inherent meaning without context, such as "of" and "the."

Function and *content* words often show different personality correlates. Content words most commonly exhibit statistical relationships to explicitly-accessible self-information, such as sociability and trait affect, whereas function words are typically predictive of lower-level personality processes, including things like automatic cognitive and attentional processes.

Language Analysis Methods and Techniques

Qualitative Methods

Language analysis in psychology dates back to the early beginnings of modern psychology. The earliest research methods of psychological language analysis were qualitative methods. Early work on language and personality principally consisted of case studies that emphasized the deep interpretation and discovery of hidden meanings in a person's language. Such methods include classical projective tests developed by Rorschach and others to discover people's thoughts, intentions, and motives from their verbalized interpretations of abstract images such as inkblots, as well as Murray's Thematic Apperception Test (TAT), which was designed to reveal information about a person's implicit motivational processes.

The main disadvantages of qualitative approaches to language analysis are that a researcher's subjective interpretation of language data may often introduce non-uniform bias, and the findings cannot typically be extended to wider populations with the same degree of certainty as quantitative analyses. Qualitative approaches to language analysis are not commonly used in modern empirical personality research, but several such methods do still exist and have demonstrated value in research and clinical practice. Qualitative methods may be viewed as the foundation upon which more objective empirical methods have been built; such methods remain an implicit component of many language analysis techniques.

Manual-Based Language Coding

Many approaches to language analysis research require multiple human raters to manually code texts. These approaches typically employ human judges that rely on standardized manuals in order to identify and quantify prevalent themes and patterns within a sample of participant language. These approaches use language to explore personality characteristics by coding latent constructs such as motivational processes, intimacy, explanatory style, gregariousness, and decision-making, among others. Manual-based coding techniques are also sometimes applied to aid in the diagnosis of clinical phenomena, such as personality disorders.

Based on formalized coding systems, manual analyses can be used to explore whether a particular theme is indicative of certain personality constructs. For example, some findings show that manually-coded themes about "status" suggest a striving for power, and other studies show that people's explanatory styles (the ways people explain the cause of an event) are linked with optimism, depression, and habitual health behaviors. The primary drawback of manual text coding is that studies can suffer from issues of inter-rater reliability and a reliance on subjective judgment calls in cases that are not adequately covered by coding manuals. Nevertheless, the manual-based coding of language can be particularly useful for small samples and difficult-to-assess constructs that require advanced knowledge to recognize. Manual methods continue to be a mainstream mode of exploring language within psychology, and such methods allow researchers to closely understand the language samples in their studies.

Automated Text Analysis

With the technological advances of recent decades, automated text analysis methods have begun to replace traditional ones with increasing frequency. Automated text analysis gained popularity primarily as a result of the expansion of the internet and a sudden availability of language samples that were too large to code manually. Much like manual coding, automated text analysis methods quantify a person's language for the purpose of better understanding underlying psychological patterns. Most automated text analysis systems use *word counting* approaches, where sets of words are clustered into construct-specific dictionaries (e.g. affective words, morality words, risk-sensitivity words). Texts are then

scanned for words in these dictionaries, and categories of words are then scored for their relative frequency (e.g. 10% cognitive words, 4% positive emotion words). The creation of dictionaries that exhibit acceptable psychometric properties is a difficult task, and this has been cited as the major drawback of dictionary-based text analysis approaches.

Automated theme extraction, or *topic modeling,* refers to a family of methods that use a bottom-up approach to discover what topics or themes exist in a collection of documents. These methods typically aim to determine the inherent themes of the texts and can be used to categorize language samples. Most topic modeling approaches consist of some variation of generating statistical models designed to capture concept co-occurrence (e.g. "beach" and "sand" may commonly co-occur, as might "lawyer" and "divorce"). These methods most often express themes as a latent construct that can be mathematically approximated from the words that people use. Other latent model methods, such as Latent Semantic Analysis (LSA), are conceptually related to topic modeling methods and are typically used to extract meaning from texts by modeling the proximity of word use in addition to the similarity of various words and phrases. Methods such as topic modeling and LSA are considered "bottom-up" approaches to automated text analysis as they are data-driven, rather than the "top-down," dictionary-based methods that rely on premade dictionaries. Whereas top-down methods of language analysis are limited in scope but typically theory-driven, bottom-up methodologies are more broadly applicable but largely exploratory.

The objectivity and reliability of computerized language analysis corrects for several issues inherent to qualitative and manual coding methods, however, other drawbacks exist that are better addressed via non-automated coding. A primary challenge in automated text analysis lies in the difficulty of automatically modeling language that is sensitive to context or can take on alternative meanings. Sorting words into clusters can be difficult due to issues of homography, wherein many words are spelled identically but have multiple meanings and different connotations depending on when, where, how, by whom, and toward whom they are used. For example, the common word *like* may express evaluation or approval ("I *like* that song"), similarity ("This car is *like* that one"), or be used to serve as a filler word ("I am, *like*, really happy"). Computerized dictionary-based approaches are generally unable to detect subtle aspects of language such as irony or metaphors, which are potentially important psychological constructs for personality research.

While most personality research involving automatic language analysis quantifies the relative frequency of various predefined words/thematic categories, methods hailing from other traditions, such as information sciences or computational linguistics, have been successfully applied to personality research as well.

Dimensions of Language in Personality and Personality Processes

Several studies have established stable associations between personality traits and the types of words people use, allowing researchers to accurately estimate/predict a person's distinct personality traits by analyzing their language. For example, as hypothesized, individuals who score high in self-reported extroversion more frequently use words indicative of social processes (e.g. friend, talk, husband). Self-reported openness is usually marked by an

elevated use of articles and words related to insight (think, know, consider), and conscientiousness is indicated by a person's infrequent use of negations and negative emotion words.

Importantly, more atomic facets of personality, or *personality processes*, are often more directly encoded in a person's language than broader personality constructs. Personality processes are the lower-level facets of behavior, cognition, and affect that contribute to the broader, overall personality constructs. These processes include any psychological mechanism that is stable over time and cohere to form, or contribute to, personality. For example, many low-level social processes are indicative of broader personality traits. A tendency to mitigate social conflict contributes to the broader trait of agreeableness, and elevated positive affect during socialization is a process that contributes to extroversion. Relatively low use of anger words during conflict may be predictive of an agreeable peace-keeper, and an increased use of positive emotion words during socialization can mark an extrovert's affective processes in trait-congruent contexts.

Relatedly, cognitive processes that contribute to personality show language embeddings as well, typically in the form of function words. Frequent use of first-person singular pronouns (e.g. "I," "me," "my") is reflective of self-reflective attentional processes that are markers of neuroticism and depression. Thinking styles (e.g. slow and deliberate versus fast and non-conscious) are reflected through function word use as well, and such cognitive processes can be indicative of personality variables as diverse as conservatism, attributional tendencies, and self-schemata.

See Also

Cognitive Methods in Personality Research
Linguist Analysis in Personality Research (including the Linguistic Inquiry and Word Count)
Personal Narratives

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Personality Stability and Change over Time

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Freud believed that personality is largely formed by the age of 5 years, and William James said that personality sets like plaster by age 30. More recently, personality psychologists estimated that personality becomes stable by about age 50, although it may undergo further changes later in life. Indeed, instead of trying to identify when personality stops changing and achieves stability, the pendulum has swung in the direction of understanding the more complex idea of the interplay between personality stability and change across the entire lifespan.

Empirical studies of personality stability and change typically investigate personality traits, defined as relatively enduring patterns of thoughts, feelings, and behaviors. To measure these patterns reliably and to use them to predict future outcomes depends on their being somewhat stable. Without some degree of stability, neither scientists nor laypersons would find traits useful for describing people or understanding their behavior. However, just as height increases until young adulthood, then remains stable until a decline in old age, psychological capacities, including personality traits, may also follow a trajectory of development, stability, and change.

Personality psychologists have examined such a maturational model of stability and change for the Big Five personality traits (extraversion, agreeableness, conscientiousness, emotional stability, and intellect/openness). They have confirmed that, just like our physical development, personality traits undergo marked changes in childhood and youth, then stabilize in adulthood before changing again in old age (Specht et al., 2014). Broadly speaking, there is a general trend for personality traits to mature in a more socially desirable direction. In a landmark study, Roberts, Walton, and Viechtbauer (2006) compared mean levels of Big Five traits in samples that differed by age. Comparing samples across different ages, they found that people became less neurotic, and more dominant (a part of extraversion), agreeable, and conscientious, whereas in old age they became less open to experience and less social (another aspect of extraversion). In addition, some studies show that after age 60 people become less conscientious as they leave work responsibilities behind and enjoy "La Dolce Vita" (Marsh, Nagengast, & Morin, 2013).

Another way to study personality stability is by rank-order correlations. These correlations measure the degree of similarity between levels of the same trait across two occasions. They indicate the extent to which individuals maintain their rank-order position across two times of measurements. For example, is the most extraverted adolescent freshman in high school also the most extraverted senior? These correlations range from 0–1.0, where zero indicates the rank order of sample members on the first occasion bears no resemblance at all to the rank order of the sample on the second occasion, and 1.0 indicates the identical rank-ordering of the sample members on both occasions. Not surprisingly, given the findings for substantial maturational changes in childhood and youth, these correlations are lower for children than adults across the same time interval, but are far from negligible. In another landmark report combining results from numerous studies, Roberts & DelVecchio (2000) estimated the rank order stability correlations across the same time interval for samples of different ages. For children aged 6–12 years, this estimate was between .40 and .50, whereas for adults aged 50–59 it was over .70. In sum, when personality is still developing, it is considerably less stable than when it has reached maturity in adulthood, although even then it is not perfectly stable.

The study of rank-order correlations has also established that longer time intervals between the two personality assessments result in lower correlations. This is true when examining time intervals within adulthood, so is likely to be even more marked when correlating an assessment in childhood, when personality is still developing and is therefore unstable, with an assessment in adulthood. In a study of Big Five stability over 40 years from approximately ages 10 to 50, the highest rank-order correlation was only .30 for extraversion, and emotional stability correlated .02, indicating no stability at all (Hampson & Goldberg, 2006). This study underscored the importance of examining differences in trait stability among the Big Five: some personality traits appear to be more stable than others.

Combining the findings from these two ways of studying personality stability, it is apparent that there are maturation trends that result in average trait levels changing over time but within these normative trends, individuals remain at least moderately consistent, and more so in adulthood than in childhood. As insight into this pattern of personality development emerged, it prompted considerable interest in the causes of personality stability and change over time. One view is that personality change over the lifespan is primarily the result of intrinsic maturational changes brought about by genetics (McCrae & Costa, 2003), while another is that it results from encountering and adapting to life experiences (Roberts, Wood, & Smith, 2005). Most recently, the study of genetic and environmental influences on personality traits incorporates the concept of epigenetics, the idea that life experiences cause genes to be activated or suppressed, into socio-genomic personality theory (Roberts, 2018). The discovery of epigenetics tells us that biology is not necessarily destiny, and it becomes even more challenging to unravel the genetic from the environmental components of personality traits.

The life events most commonly thought of as leading to personality change are those social milestones related to love and work. Young adulthood (i.e. before about age 30), is a time of considerable personality change, and also a time when there are cultural pressures to enter into a stable relationship and settle on a vocation. More broadly, across the lifespan, experiences related to love (e.g. marriage, parenthood, divorce, and widowhood) and experiences related to work (e.g. going to college, getting a first job, becoming

unemployed, and retiring) are expected to lead to changes on Big Five traits. It seems reasonable to expect that a person may become more conscientious after joining the workforce, or more agreeable after finding a romantic partner. However, existing studies provide only modest support for these commonsense ideas (Bleidorn, Hopwood, & Lucas, 2018). This may be due to the lack of adequate longitudinal research, which requires assessing personality before and after major life experiences that are beyond the researcher's control.

In addition to personality trait change induced by external events, there is the possibility of intentional change attributable to a person's desire to change themselves. As would be expected, psychotherapy produces changes on Big Five traits such as extraversion and neuroticism (Magidson, Roberts, Collado-Rodriguez, & Lejuez, 2014). Many of us would like to change some aspect of ourselves for the better, and so it is reassuring to know that intentional personality change is achievable although not necessarily easy (Hudson & Fraley, 2015).

Personality demonstrates both stability and change, probably less stability and more change than was hitherto believed. What are the implications of this increasing emphasis on personality change over the lifespan for the usefulness of the concept for understanding ourselves and others? One important yardstick for measuring the utility of personality is the extent to which personality traits predict consequential outcomes such as job performance, marital stability, health, and longevity. There is substantial evidence that personality predicts such outcomes, even when assessed many years prior to the outcome in question, including the case where personality is measured in childhood and the outcome is measured in adulthood (Roberts et al., 2007; Moffitt et al., 2011). Early personality traits can have a long-reaching impact on life outcomes, despite subsequent personality change.

Scientific observations of personality changes over the life course may not sit well with our subjective experience of personal continuity. How do we reconcile our enduring sense of self with demonstrable personality change? McAdams (2013) proposed that we do this by constructing our life story in which we make sense of our experiences and changes to form of a meaningful autobiography. We also may underestimate the amount of personality change that has occurred by recalling our past selves as more similar to our present selves than was actually the case.

To conclude, contrary to Freud and others, findings from personality research do not support the view that personality development stops in childhood or young adulthood. Personality traits, like other psychological and physical attributes continue to develop and change throughout life. Before the age of 30 and after the age of 60 are the periods of greatest personality change. These changes result from a combination of genetic and environmental influences that are still poorly understood.

See Also

Big Five
Dan McAdams
Personality and Aging
Personality Development
Personality Development Across the Lifespan
Personality Stability and Change Over Time
Personality Stability Over Time

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Personality in Culture

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The relationship between personality and culture has sparked much interest among personality and cultural psychologists alike. Theorists have long proposed that there is a core set of personality traits that are universal, as opposed to culturally-bound. However, there is evidence that culture plays a major role in determining one's personality, and may even lead to the expression of traits that are not captured by models of personality developed in Western cultural contexts. Another source of academic interest is the degree to which cultures agree on what personality actually is, and how individuals understand the self and identity. This section explores some of the key theories and findings that have been made in cross-cultural studies, and the implications they carry for how we are to understand the self and personality.

The Concept of Personality Across Cultures

Any discussion of personality in culture must begin with cultural differences in how the self is constructed. One well-established cultural difference is the degree to which people perceive themselves as separate from others, or connected to them. Markus and Kitayama (1991) distinguished between independent, and interdependent self-construals, where people with an interdependent self-construal view themselves as separate, distinct entities from the people around them and individuals with an interdependent self-construal view themselves similar to the people around them. For people with independent self-construals, the self is believed to contain all of the key features of one's identity, including preferences, opinions, and personality. People from Western cultural contexts (i.e. North America, Europe) typically have independent self-construal (Markus & Kitayama, 1991). On the other hand, people from Eastern cultures (i.e. China, Japan) typically have an interdependent self-construal. That is, they believe that many key features of their identity are tied to the relationships they have with others. This creates differences both in terms of how people from different cultural contexts interact with those around them, and how they perceive themselves.

One consequence of this difference is that people from Eastern and Western cultures differ in how consistent their self-concept is across situations. Self-consistency can be thought of as a tension between the concept of a situational self (in which aspects of behavior are affected by the situation) and a stable self (in which a person's behavior is consistent across situations and arises out of their underlying personality). Japanese people, for instance, are much more likely to vary their self-descriptions depending on their social context, and are more self-critical when they are around other people (Kanagawa, Cross, & Markus, 2001). Americans, on the other hand, provide self-descriptions that are invariably positive, regardless of the social situation. This reflects the degree to which the self is inter-related with others in their social context.

Another cross-cultural difference in how people understand identity is between entity and incremental theories of self (Dweck & Leggett, 1988). Individuals who hold an entity theory of self believe that one's traits and personality are unchanging, and reflect some underlying core essence. Entity theorists thus believe that their abilities are fixed, and will stay the same over time. Individuals who hold an incremental theory of self, on the other hand, believe that one's traits and personality are malleable and can be improved over time. Incremental theorists thus believe that skills and abilities can be increased through hard work. Studies provide evidence that East Asians are more likely to hold incremental views of the self than North Americans (e.g. Heine et al., 2001; Norenzayan, Choi, & Nisbett, 2002). This impacts people's attitudes toward success, achievement, and perceived efficacy. Chinese, Japanese, and Indian people are all more likely to believe that intelligence and academic success are the product of hard work, which in turn has been shown to affect people's orientations toward self-improvement. In contrast, North Americans have been shown to increase effort following success, but not following failure (Heine et al., 2001).

Personality Differences Across Cultures

The stability of the self across social contexts, and across time, varies between cultures, as does the degree to which people value individuality or relationships. A separate but related topic is the degree to which personality traits can be thought of as universal, or culturally-situated. For instance, the Five Factor Model of Personality, or Big Five (McCrae & Costa, 1987) is the most widely endorsed model of personality, and is believed to present itself everywhere in the world. In this model, personality is organized into five dimensions: openness, conscientiousness, extraversion, agreeableness, and neuroticism. Researchers have consistently observed differences in the degree to which each of the five dimensions is expressed. Using the NEO-Personality Inventory (NEO-PI-R), Allik and McCrae (2004) generated a map of personality traits based on self-reports of college-age adults from 36 cultures. They found a separation of European and American cultures from Asian and African cultures, where European and American cultures were higher in extraversion and openness, but lower in agreeableness. Despite these differences, one important observation was that there was typically more variation within a culture than between cultures (Allik and McCrae, 2004).

Though these cultural differences may be attributed to differences in what is socially-desirable in each culture (Allik and McCrae, 2004), there is some evidence that culture impacts personality through other means – specifically, evolved processes that can affect

personality. One mechanism that has been proposed to lead to variation in the expression of personality traits across cultures is the behavioral immune system, which is the degree to which individuals are aware of potential disease-causing pathogens and motivated to avoid them. It has been theorized that sensitivity to, and avoidance of disease-carrying pathogens is predicted by the historical prevalence of disease in a given geographical area. Schaller and Murray (2008) determined that in regions with high historical disease prevalence, there are likely to be lower levels of extraversion. This is believed to reflect the degree to which individuals are avoidant of others who may spread disease. Openness to experience is also lower in regions characterized by historical prevalence of disease, given its relationship with experimentation and the potential for exposure to objects or events that may cause harm (Schaller & Murray, 2008).

Though the Big Five seem to be generally descriptive of personalities across cultures, there is nevertheless some debate about its efficacy in capturing all of the variance in how people think and behave. This criticism stems from the fact that the inventory is translated from English, and therefore relies on personality terms that are developed in English and selected by Westerners (Heine, 2016). One solution is to use approaches that rely on situating personality constructs in what is relevant to the culture. For example, using personality descriptors that come from the languages spoken in the regions of interest allows researchers to describe personality in terms that populations might actually use, rather than imposing a Western framework. Many studies have been conducted in the Philippines using this approach, with inventories developed from analyses of self-reported Filipino personality characteristics, which are then compared to the Big Five (e.g. Church & Katigbak, 1988; Katigbak, Church, & Akamine, 1996). These analyses revealed generally good agreement between the Big Five and the dimensions obtained using this method. However, Filipino personality taxonomies tended to yield one or two more factors that are not captured by the Big Five; for example, social potency, which is related to self-assurance (Katigbak, Church, & Akamine, 1996).

Another prominent use of this method is the Chinese Personality Assessment Inventory (CPAI), which reveals a sixth factor labeled interpersonal relatedness that cannot be explained using any of the Big Five personality traits (Cheung et al., 2001). The implication of this finding is not necessarily that universal personality traits do not exist, but perhaps reflects a "blind spot" in Western tools of analysis, where relatedness is de-emphasized (Cheung et al., 2001).

In fact, there is no clear evidence that the Big Five exist among small-scale indigenous societies (Gurven, von Rueden, Massenkoff, Kaplan, & Lero Vie, 2013). Rather, there seems to be a "big two" that emerges, corresponding to prosociality and industriousness. Studies like these suggest that there are inherent difficulties in applying Western models of personality to cultures that are distinct from the West.

There is much that personality psychology can learn from taking a cross-cultural perspective. Understanding how personality operates within culture is a complex task, requiring consideration of how personality is expressed and understood in non-Western contexts. Furthermore, there is not yet definitive evidence of a universal set of human traits, though the fields of personality and cultural psychology have become progressively more committed to resolving this ambiguity (McCrae & Allik, 2002). Scholarship on the personality in culture consistently shows that the people we are, and how we understand the self, is deeply rooted in our cultural context.

See Also

Acculturation Considerations in Personality Assessment
Addiction and Addictive Personality
Biculturalism

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Personality Stability over Time

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The Stability of What?

Personality stability refers to the extent to which a person's characteristic ways of thinking, feeling, and behaving remain consistent and recognizable over time. It can be helpful to think of physical features as an analogue. Consider that you would likely be able to match childhood pictures to present-day pictures of your friends and acquaintances. Even though their faces have changed over time, you can still see that the person in front of you and the child in the picture are the same person. Over longer spans of time, it may become harder to make an accurate match. Currently, our best understanding of personality stability is similar to this. Personality is not perfectly stable. People can and do change as time passes. In most cases though, we can still measure some degree of stability that remains consistent, even over long spans of time.

In order to investigate the stability of personality, it is important to first decide how we are to conceptualize personality. Prior to the widespread adoption of the Big Five model of personality in the mid-1990s, there was no consensus on which constructs to focus on to investigate personality stability. Five broad trait domains, Extraversion, Agreeableness, Conscientiousness, Neuroticism, and Openness/Intellect, have been found to replicate across many different languages, and across different stages of life. By focusing on the Big Five domains, researchers have accumulated sufficient evidence to give estimates of how stable personality is at different points in the lifespan. Research has also addressed how stable personality is over short intervals, over longer intervals, and the rate at which stability declines over ever-increasing periods of time.

Stability can be defined in multiple ways, and research studies focused on "change" or "stability" are complementary. Because of this, all of the ways that personality change is studied can also tell us about stability. Personality stability has been conceptualized in many ways, and could refer to absolute trait levels, the maintenance of a specific

personality profile, the persistence of a personality disorder, or rank-order stability. The two most studied types of stability are absolute or mean-level stability, and rank-order stability.

Mean-level Stability

Mean-level stability refers to the extent of change evidenced in the absolute levels of personality traits across time or ages. If, for example, everyone in a population becomes more agreeable with age, we would observe increases in individual level scores of agreeableness, along with increases in the mean-level across the population. Change of this type can be assessed by either assessing a group of people over time using a longitudinal design, or assessing people of many different ages at one point in time in a cross-sectional design. Interpreting results from both types of studies poses specific challenges. If groups of people born at different times, or cohorts, start with similar mean-levels, then cross-sectional data gives a good picture of mean-level stability across ages. However, cohorts may have different starting points. Longitudinal work can take decades and expensive resources to complete, but has the advantage of directly describing trajectories. Some cohorts may change in specific ways that are unique to their place and time in history. This requires researchers to look at many different longitudinal cohorts. An advantage to using both cross-sectional and longitudinal methods is that we can look for places where these different methods agree. The aggregate picture can point to results that are consistent across cohorts, and methods. Meta-analytic results indicate that mean-levels on the Big Five personality traits are relatively stable, with small mean-level changes occurring at all points in the lifespan for all traits. While some might expect to see the least amount of stability in adolescence, the largest mean-level changes have instead been observed in young adulthood. In general, as people age, they tend to become more agreeable, conscientious, and emotionally stable (Roberts, Walton, & Viechtbauer, 2006). Cumulative changes in mean-levels of these traits over the lifespan can approach one standard deviation in magnitude.

Rank-order Stability

Rank-order stability is assessed by measuring the same sample on at least two different occasions and estimating the correlations between scores on personality dimensions across time. If everyone remains in the same rank with respect to each other on levels of a given trait, the rank-order correlation will be perfect. If many people change standing on a trait relative to each other, the correlation will be reduced in magnitude. Meta-analytic work, which accumulates findings over many studies, indicates that rank-order stability tends to increase with age, reaching a peak sometime after the age of 50 (Roberts & DelVecchio, 2000). Even at the peak of stability, this association is not perfect and thus traits are able to change to some degree.

Because mean-level stability and rank-order stability can be related in complex ways, an accurate description of personality stability must consider both (Edmonds, Jackson, Fayard, & Roberts, 2008). When most people in a cohort or population increase on a trait,

this will be observed as a mean-level increase. This need not affect the rank-ordering within the cohort, in which case rank-order stability and mean-level stability are independent. However, rank-order stability and mean-level changes are not always independent in this way. The best way to address the possible dependency between mean-level and rank-order stability is to investigate both. As an example, research using data from the German Socio-Economic Panel (GSOEP) has allowed for several insights from combining both methods (Lucas & Donnellan, 2011; Specht, Egloff, & Schmukle, 2011). These data comprise large representative samples that span a wide age range, and have now been assessed on the Big Five on more than one occasion. Results using these data show a U-shaped pattern in rank-order stability for most traits with increases across young adulthood, reaching a peak after age 50, followed by declines later in life. In contrast, Conscientiousness showed a different pattern of steady increases in rank-order stability. Mean-levels trajectories differed across traits. Extraversion and Intellect/Openness tended to decline with age, while Agreeableness showed small increases. Conscientiousness increased through most of the lifespan. Neuroticism showed relatively flat mean-level trajectories, with small increases earlier in midlife, followed by declines later in life.

Mechanisms of Stability

Many possible mechanisms have been proposed as drivers of personality stability. Life events that affect personality development may be expected to reduce stability (Allemand, Gomez, & Jackson, 2010). Expectations associated with age-graded social roles have also been proposed as drivers of personality change. One theory of trait stability argues that people select social roles and environments consistent with their personality trait levels. Experiences associated with this selection then reinforce these same traits. This process is referred to as cumulative continuity, or co-responsive development (Roberts & Caspi, 2003). For example, an extroverted person is more likely to choose social rather than solitary situations and select vocations that allow opportunities to be sociable and energetic. This practice can then reinforce the development of this trait, driving stability. In addition, genetic mechanisms play a role in explaining both observed mean-level changes, and patterns of personality stability. Indeed, a comprehensive theory of personality development needs to account for how social-environmental and genetic mechanisms work in tandem to explain change and stability (Bleidorn, Kandler, & Caspi, 2014).

Future Directions

While the current understanding of personality stability rests on large amounts of accumulated data, new results continue to raise interesting questions. For example, recent research using older samples than the age range covered in previous work has shown that in some cases, stability declines in the later stages of life. This decline may result from changes in identity and social roles, age-related declines in cognitive functioning, or declines in general health. Investigating these questions may point to important associations between personality stability and consequential outcomes later in life. Questions remain regarding

the ways rank-order stability declines over long spans of time. As intervals between measurements increase, rank-order stability estimates typically decrease. However, even studies spanning many decades show some amount of rank-order stability in the Big Five (Edmonds, Goldberg, Hampson, & Barckley, 2013). The rate at which stability declines as intervals increase has been theorized to be non-linear, insofar that it approaches a lower asymptote that is greater than zero. In other words, stability may never decline to the point that the correlation across assessments reaches zero (Fraley & Roberts, 2005). Other growing areas of research on stability focus on estimating stability for narrow components or facets of the Big Five, and similarly investigating stability in higher order structures that subsume the Big Five. Observed stability at the Big Five level may result from a causal mechanism operating at these different levels of analysis.

There is much left to learn about the stability of personality over the lifespan. The degree to which we can answer questions about the nature of stability over time depends on having data available where personality is measured on more than one occasion in the same sample, as well as data from cross-sectional samples with wide age ranges. It is also important to consider the interval of measurement, and the point in the lifespan when personality is assessed. By aggregating across many such studies, personality psychologists can answer important questions about the nature of personality stability over time.

See Also

Adler Individual Psychology
FFM and Facets
Longitudinal Research
Personality Development
Personality Development Across the Lifespan
Personality Stability and Change over Time

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Priming

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Most broadly, priming refers to the activation of mental representations that subsequently affect judgments and/or behavior. Although priming often targets mental representations of goals, attitudes, objects, or stereotypes, it also can be used to temporarily accentuate or suppress personality variables. In this entry, the individual who is exposed to a prime is called a *recipient*, and the construct activated by the prime is called a *target*.

Methods

Researchers have developed diverse methods for priming personality, which are best summarized through two organizing variables: liminality and modality. How the efficacy of priming can be measured also is an important distinction.

Liminality

Subliminal primes consist of stimuli that recipients register but are not consciously aware of (e.g. Weinberger & Westen, 2008). For example, extremely brief (~30 milliseconds) visual stimuli such as images or words will be shown to recipients, presumably activating the associated target in the recipient's semantic network. Subliminality also can be ensured by presenting primed words in recipients' parafoveal visual space (within recipients' sight line but outside of the attentional center known as the fovea). In contrast, supraliminal primes consist of stimuli that recipients are consciously aware of (e.g. reading a passage about empathy); however, they may not be consciously aware of the prime's *effect* on them (e.g. inducing more empathic thinking or behavior). According to Loersch and Payne's (2011) situated inference model of priming, primes often will be effective precisely because recipients are not aware of how a prime has shaped their thinking. That is, recipients typically consider the prime's influence (e.g. the effects on their subsequent thoughts) to be endogenous reflections of their own natural cognition.

Modality

Primes vary widely in their form. The most common form is likely verbal presentations ranging from brief flashes of relevant words (e.g. "RATS" to prime negativity) to lengthy passages designed to direct thinking toward the target. Visual images such as selected individuals' faces have proven effective when those faces are known to the recipient for either personal (e.g. a family member) or general knowledge (e.g. the current president) reasons. However, more behavioral primes also have been used such as having recipients engage in an in-lab competition to prime competitiveness.

Measurement of Priming Effects

A wide variety of dependent variables have been considered in priming research including neuroimaging signals, sentence-completion tasks, ambiguous anagrams, facial expressions, personality questionnaires, subtle measurement of participant behaviors, etc. Zwaan (2013) has argued that on theoretical grounds, one might anticipate smaller effects as one moves along a continuum from internal to external measured outcomes. That is, if priming works by subtly manipulating thought patterns, then larger effects likely will be obtained on cognitive or perceptual outcomes (because these are most directly impacted by a prime), and smaller effects will be obtained on behavioral outcomes (which are only indirectly influenced by the prime). In other words, nodes within a semantic network (one word or concept influencing another) are more proximally related than nodes between semantic and behavioral networks. So, a verbal prime most powerfully will influence a thought pattern but likely will result in only subtle behavioral changes.

Priming of Personality

Researchers prime personality constructs for several purposes. First, because studies of personality characteristics are often correlational, it can be difficult to establish a causal or at least an isolated directional influence of traits on judgments and behavior. For example, Jacobson, Weary, and Lin (2008) conducted several studies on causal uncertainty, the belief that one may not understand causal patterns shaping social events. They found that high causally uncertain people processed social information more when asked to consider the adequacy of their understanding (a sufficiency rule) than if asked to consider whether they were enjoying an information-seeking task (an enjoyment rule), whereas low causally uncertain people did not differ significantly in the two rule conditions. To better establish that this effect was causally driven by causal uncertainty, in Experiment 3, Jacobson et al. primed causal uncertainty by having participants study several sentences known to exemplify causal uncertainty beliefs. When primed in this way, low causally uncertain people responded to the two rules like the high causal uncertainty individuals did in the first two studies. In a similar fashion, cross-cultural researchers have strengthened the link between individual differences in individualism and collectivism as an explanation for group differences between Western and Eastern cultures by priming independent versus interdependent self-construals (Oyserman & Lee, 2008).

In addition, researchers have used priming to establish the contextual nature of personality. For example, Baldwin and Holmes (1987) examined the boundary conditions of individual differences in sexual openness on arousal by having undergraduate women mentally visualize the faces either of their parents or of their campus friends before reading a sexually provocative passage about a woman having a sexual dream. Women who first visualized their parents rated the arousing passage as less enjoyable than did women who had visualized their friends. Thus, they established that the effects of personality differences are susceptible to nudges based on temporarily activated or situational cues.

Moderation of Priming by Personality

Personality factors also can moderate the effects of primes on recipients' judgments and behavior. In several studies, participants' chronic or trait levels on a personality construct have moderated their responses when exposed to temporary activations of that same construct. For instance, in the Jacobson et al. (2008) studies discussed earlier, high causally uncertain people exposed to the causal uncertainty prime no longer responded differently to the two stop rules, a deviation from their usual response pattern caused by priming. Jacobson et al. proposed two explanations for this finding: (1) The chronic and temporary activation of causal uncertainty was additive, making high causally uncertain people so uncertain that they gave up on the task, believing further processing would be futile; or, (2) chronically activated causal uncertainty changed the interpretive context of the prime and made them perceive their temporarily activated causal uncertainty as more extreme. This explanation would fit with previous research (e.g. Herr, 1986) in which people contrast away from primes that are very extreme rather than assimilating their responses toward the primed content. Either interpretation supports an interesting possibility for personality moderation of priming: for people who already possess high levels of a trait, further priming of that trait may diminish or even reverse their typical responses.

Other research has shown that personality can moderate priming more generally. Wheeler and Berger (2007) found that that introverts preferred comfort foods over spicy foods but only after a party prime, which should activate stress in introverts. Extraverts' preferences did not differ across priming conditions. Additionally, people low in self-monitoring (see Self-Monitoring (to include the Self-Monitoring Scale), Assessment of) are more responsive to and show greater behavioral effects of primes than do people high in self-monitoring (DeMarree, Wheeler, & Petty, 2005). These findings support DeMarree et al.'s active-self account of priming, according to which priming works by biasing individuals' self-representations in assimilation to the prime's content. Low self-monitors, who are more likely to use internal cues as the basis for their decisions, also are more susceptible to the internal cue of self-representations activated by a prime.

Criticisms and Responses

Priming research in general has come under fire, particularly for issues relating to replicability (see Replication Research), leading to a heated debate about the legitimacy of priming research. This debate was ignited when Doyen, Klein, Pichon, and Cleeremans (2012)

failed to replicate Bargh, Chen, and Burrows's (1996) research on the effects of priming on elderly participants' walking speed. Some defenders of priming have pointed out that replications actually are quite common when replication-and-expansion studies are considered, many of which investigate personality moderators. For example, in Hull, Slone, Meteyer, and Matthews (2002), an elderly prime did lead to slower walking speeds but only for people high in private self-consciousness (see self-consciousness, Assessment of). Other defenders have argued that primes should not be expected to be invariant across time, situation, and cultures (Cesario & Jonas, 2014). Of course, one concern is that models that predict extreme intercontextual variability become unfalsifiable because non-replications easily can be dismissed as evidence of "hidden moderators." Thus, many researchers now advocate for greater transparency in method and data reporting and for priming researchers to explicitly consider potential moderators of their effects.

Another issue more specific to priming of personality is that the temporary effects induced by primes may be poor substitutes for actual personality traits, undermining the claim that priming personality provides a demonstration of personality traits' causal operations. Personality factors may have longitudinal, downstream effects on cognition, interpersonal relations, and affect that are impossible to simulate through priming. Indeed, primes are unlikely to fully capture all that a personality construct entails. However, the Jacobson et al. (2008) results described earlier as well as comparable results where both dispositional and temporarily primed causal uncertainty show similar effects in reducing stereotyping (Weary, Jacobson, Edwards, & Tobin, 2001) are examples wherein researchers have demonstrated some compelling equivalences between dispositional and primed personality constructs, reaping substantial theoretical gains.

In sum, priming has been a technique to further test and understand the influence of personality on people's judgments and behavior. However, priming research is at a crossroads due to questions of theory and replication. If priming research continues to lose credibility, then personality researchers may lose an important technique for addressing causal influence. Personality researchers may have much to contribute to the priming debate by helping to reconcile some of the conflicting findings by identifying individual difference moderators of priming effects or better understanding the interplay of chronic and temporarily activated constructs.

See Also

Religiosity
Replication Research
Self-consciousness, Assessment of
Self-construal
Self-monitoring (to include the Self-Monitoring Scale), Assessment of
Unconscious Processes

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Realistic Accuracy Model

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The Realistic Accuracy Model (RAM) is a description of the four-step process that describes how accurate judgments are made about the personality traits of others. The model is useful for understanding what has to happen for an accurate judgment to be possible, as well as for identifying moderators of accuracy and ways to increase accuracy. The model was a reaction to the discipline's focus on biases resulting in the misperception of others, and this is the rationale for the explicit focus on accuracy. Furthermore, the model is concerned with judgments of real people based on actual cues that people exhibit, rather than with judgments of hypothetical people based on constructed sentences or descriptions. For this reason, the criterion for determining a judge's level of accuracy is preferably a composite of ratings from the person being judged and others who know this person well.

When discussing this model, and accuracy of personality judgment in general, the term *judge* or *perceiver* refers to the person making the judgments and the term *target* refers to the person being judged. The process of judgment can occur with or without awareness on the part of both the target and the judge. First, targets could attempt to make a certain impression and attend to the cues they give off, and judges could intentionally be attending to targets and attempting to make accurate judgments of their personality. However, targets could also unwittingly emit cues that are relevant to personality and available for others to detect, and judges could pick up on those cues and make judgments without consciously intending to do so.

History

Research on accuracy of personality judgment was first popularized in the decades between 1920 and 1950 by researchers such as Stanley Estes (1938) and Philip Vernon (1933). During this time, research mainly focused on how well personality judgments matched how targets perceived themselves, which is known as *self-other agreement*. However, a methodological

critique by Lee Cronbach (1955) led to a drastic decline of the research in this area. Cronbach argued that there were unaddressed issues in the way accuracy of personality judgment was measured, and these issues could lead to inaccurate conclusions. In particular, he argued that accuracy was made up of several components, not all of which reflected accuracy of the judgment per se. Rather than find ways to assess each component, most researchers shifted their focus to the *process* of personality judgment through the use of hypothetical targets. As a result, the concept of accuracy was largely ignored over the next 20 years.

Around the same time, social psychologists began to focus on the "error paradigm," which asserted that people use representative heuristics, or characteristic ideas about a situation or outcome, to make judgments. This led to the idea that people are actually much more inaccurate in their judgments about others, and further fueled the arguments against studying accuracy. Additionally, attributing behavior to personality, instead of to the situation, was conceptualized as an error that would lead to inaccurate perceptions of others. This error was labeled the *fundamental attribution error* (FAE) by Lee Ross in 1977. Research on the FAE was popular for many decades, and further isolated accuracy research.

In the early 1980s, researchers such as David Funder (1982) and William Swann (1984) began to challenge the widely-held concepts of inaccuracy and the fundamental attribution error, and instead argued that people are surprisingly *accurate* in their judgments of others. Accuracy research made a return, but the important question of what criteria would be used to measure accuracy still remained. Different approaches developed in answer to this question. The Realistic Accuracy Model (RAM), proposed by David Funder in 1995, is one such approach that focuses on how accurate judgments are made. RAM draws inspiration from Egon Brunswik's Lens Model (1956), which represents the relationship between an object/person and an accurate judgment of that object/person. According to this model, objects give informational cues from which judgments can be inferred. These cues vary in their validity, in terms of how relevant they are to the attribute being judged. In the second stage of the model, a judge utilizes the cues. Accuracy will be highest when a judge utilizes cues with high validity and does not utilize cues with low validity. RAM expands upon this model, and identifies four stages of the judgment process.

Stages of the Realistic Accuracy Model

According to the model, the four stages must occur in a specified order to result in accurate judgment: *relevance*, *availability*, *detection*, and *utilization*. These stages are conceptualized to be multiplicative, meaning that in order for accuracy to be perfect, all stages must be perfectly completed. Imperfect completion of any one stage will result in decreased accuracy. Furthermore, failure at any one stage will render accurate judgments impossible.

Relevance

The first stage is relevance, which speaks to the quality of the information emitted by the target. In other words, information is highly relevant if it is related to the trait being judged. For example, timid behavior is relevant to shyness. Further, cues will be more relevant when the target is behaving in a genuine manner and not trying to create a false or misleading impression. Cues are also likely to be more relevant to personality when

situational demands are weak to moderate, which means that people have more flexibility in terms of their behavioral choices; whereas cues are less likely to be relevant to personality in strong situations in which behavior is constrained and therefore less likely to be related to personality.

Availability

The second stage is availability. A cue is available when it can be detected by a judge. Available cues are found in both verbal and nonverbal overt behavior. A thought or emotion is likely to be relevant to personality, but unless that thought or emotion is expressed in a manner that makes it available to a judge, it will not facilitate accurate judgment. Therefore, targets play a major role in a cue's availability by being expressive and acting in a way that is consistent with their personality. There is also a situational aspect to availability because some situations will elicit cues to some traits and not others. For example, cues to sociability are more likely to be available at a social gathering, whereas cues to work ethic are more likely to be available in a work setting. Another situational factor that can influence the availability stage is the behavior and characteristics of the people with whom the target is interacting. If the interaction partners are able to create a situation in which targets feel comfortable to express their true nature, then more relevant cues are likely to be available.

Detection

The third stage is detection, during which the judge becomes aware of the relevant and available cues produced by the target. Accuracy will be lower when the judge fails to pick up on the cues emitted by the target, which could result from not being in the same physical location as the target, or from being distracted or disinterested when in the same physical location. Conversely, accuracy will be higher when the judge is in the same situation as the target and pays attention to the target.

Utilization

The fourth and final stage is utilization, during which the judge correctly uses the relevant cues that were detected to make an accurate personality judgment. Accuracy of judgments of the same targets based on the same cues will vary if judges use the information differently to arrive at a judgment. Furthermore, each personality trait has multiple relevant cues, so judges must correctly combine these multiple cues in order to make accurate judgments.

Moderators of Accuracy

An explicit consideration in the development of RAM was the ability to theoretically account for variables that make accuracy more or less likely. Such variables can be organized into four categories: aspects of the judge, characteristics of the target, features of the trait, and properties of the information on which judgments are based. David Funder (1993, 1995) identified these four moderators of accuracy as the *good judge*, *good target*, *good trait*,

and *good information*. *Good* precedes each of the moderators to highlight the focus on the factors that make accurate judgments *more* likely.

Good Judge

The idea that individual differences exist in the ability to accurately judge others is the foundation of the *good judge* moderator. This moderator is primarily a consequence of the utilization and detection stages of RAM. However, aspects of the judge could also prompt targets to divulge more relevant information, which would affect the relevance and availability stages. Investigating this notion, Tera Letzring (2008) found that several characteristics and behaviors of judges were related to accuracy of personality judgment. For instance, being agreeable and having "purpose in life" were positively related to accuracy. Behaviorally, the use of basic social skills (e.g. eye contact, expressing warmth), enjoyment of the interaction, and liking of the target, among other aspects, were positively related to accuracy. Alternatively, yet intuitively, needing reassurance, undermining, and seeking advice were negatively related to accuracy. It was concluded that such a pattern of results supports the idea that good judges elicit more cues from the target that can then be used when making judgments. Given this, one would expect that others in the multi-person interaction or even observing the interaction should also have that information available to them for making more accurate judgments. Indeed, when judges made ratings based on observing recorded interactions, there was a positive relationship between the number of partners for a target who were good judges and the accuracy with which that target was judged.

Good Target

Much like the good judge, individual differences in how accurately targets are judged, which is known as *judgability*, have been found by several researches, including C. Randall Colvin (1993), Lauren Human, and Jeremy Biesanz (2013). From a theoretical perspective, the *good target* moderator is a product of the availability and relevance of information because people who make more relevant cues available for others to detect are easier to accurately judge. According to Daryl Bem and Andrea Allen (1974), individuals who behave consistently across situations and over time are more likely to be judged accurately because this allows for relevant cues to be available to judges on an ongoing basis. Similarly, targets who are behaviorally active emit more information that can be detected, thus providing more relevant cues to judges and thereby increasing how accurately they are judged. Judgable individuals are often described as warm, cheerful, and dependable; whereas less judgable individuals are described as hostile, deceitful, and moody. Moreover, people with high social status, good psychological adjustment, and high levels of socialization are likely to be good targets.

Good Trait

The third moderator, *good trait*, refers to the notion that some traits or characteristics tend to be more accurately judged than others. This moderator is related to the relevance and

availability stages of RAM. Traits associated with many cues that are highly visible and frequently available are more accurately judged than traits associated with cues that are less visible and less likely to be available. This aspect of the good trait has been referred to as visibility or observability. For instance, the trait of extraversion is related to behaviors such as talking in a loud voice, moving quickly, and behaving boldly – all of which are highly available – and therefore extraversion is a good trait. On the other hand, the trait of neuroticism is related to how people interpret situations and feelings of anxiety and other negative emotions – which are often not highly available – and therefore neuroticism is not a good trait. However, the ease with which a trait is judged can depend on who is making the judgment, especially in terms of whether judgments are made about the self or another person. Although neuroticism is difficult to judge in another person, the thoughts and feelings related to neuroticism are available to the self and therefore this trait is more accurately judged by the self than by others. Conversely, traits such as extraversion are commonly judged from overt behaviors, which are more salient to another person, thus allowing for more accurate judgments by others than by the self.

Another aspect of traits that is related to accuracy is the level of evaluativeness, or favorability. Oliver John and Richard Robins (1993) found that when judging the self as compared to judging others, people are more likely to be affected by a self-enhancement bias. Indeed, discrepancies have been found between self-ratings and ratings by others on highly evaluative traits.

Good Information

The *good information* moderator of accuracy posits that aspects of the information emitted by the target influences accuracy of judgments. One aspect of good information is *quantity*, or the amount of information that is available to the judge. Strong evidence has been found by several researchers to support the existence of the *acquaintanceship effect*, or the increase in accuracy that is associated with knowing a person for longer and thereby having access to more information about that person. However, C. Randall Colvin and David Funder (1991) identified a boundary on the acquaintanceship effect such that acquaintances and strangers are equally good at predicting behavior when strangers have previously observed the targets in a similar situation.

A second aspect of good information is *quality*, which reflects how relevant the information is to the characteristic being judged. In line with this theoretical view, research by Tera Letzring, Shannon Wells, and David Funder (2006) has shown that higher quality information is positively related to accuracy of judgments, when information quantity is held constant. Furthermore, Tera Letzring and Lauren Human (2014) found that dyads who discussed their behaviors or thoughts and feelings obtained higher levels of accuracy about how people are unique than did dyads that engaged in activities together. Interestingly, there is also evidence that accuracy of judging different traits is related to disclosing different types of information. Specifically, Andrew Beer and Cody Brooks (2011) found that information about values is related to greater accuracy in judgments of neuroticism, whereas factual information is related to greater accuracy in judgments of conscientiousness.

Implications of the Realistic Accuracy Model

There are three important implications of RAM. The first is that making an accurate judgment is difficult because all four stages of the judgment process have to be successfully completed in order for accuracy to be possible. This means there are four stages at which things can go wrong. The second implication is that moderators of accuracy must affect one or more of the stages. The good judge has traditionally been thought to affect the detection and utilization stages, but there is now evidence that judges can also affect the relevance and availability stages; the good target and good trait are related to the relevance and availability stages; information quantity is related to the availability stage and information quality is related to the relevance stage. The third implication is that accuracy can be improved by increasing the level of success at one or more of the stages of RAM. Therefore, accuracy can be increased by making cues more relevant, increasing the availability of cues, increasing how many relevant cues are detected, and helping judges better utilize cues.

Current Emphases

The current emphasis on research related to RAM is on deepening the understanding of the moderators of accuracy. One interesting aspect of this emphasis is the consideration that accuracy may differ as a function of the relationship between the judge and target and of the trait being judged. The Self-Other Knowledge Asymmetry model was proposed by Simine Vazire in 2010 to describe this difference, and reflects the finding that accuracy differs depending on whether judgments are about the self or another person. Judgments about the self tend to be more accurate for less visible traits, and judgments about others tend to be more accurate for more evaluative traits.

Another current emphasis is on understanding different components of accuracy, and how these components relate to the moderators of accuracy and other important outcomes. It has long been known that accuracy scores include several important components, but more standardized approaches to decomposing accuracy into these components have only recently emerged. In 2008, R. Michael Furr described how to use a profile similarity approach to examine the components of normativeness and distinctiveness. Profile similarity reflects the similarity between (1) how several characteristics are rated by the judge and (2) an accuracy criterion for those same characteristics (which can be composed of self-ratings, a composite of ratings from people who know the target well, and/or behavioral indicators of the characteristics). Normativeness is the level of similarity between an individual set of ratings and an average set of ratings based on a large group of people. Distinctiveness is the level of similarity between the unique elements of two sets of ratings, typically in terms of how the ratings differ from the average set of ratings. In 2010, Jeremy Biesanz proposed a multilevel modeling approach for estimating these two components of accuracy, in which the normative/average and distinctive ratings are simultaneously used to predict the judges' ratings. Analyses that

take these components of accuracy into account are illuminating ways that the components are differentially influenced by factors that include whether the judge is motivated to be accurate, the type of information that is available to the judge, and how accuracy relates to important outcomes such as perceptions of interpersonal support and life satisfaction of the judges.

Future Directions: Extensions and Applications

The Realistic Accuracy Model has primarily been applied to judgments of personality traits, in particular to characteristics contained in the 100-item California Adult Q-set, and to the traits contained in the Big Five taxonomy (i.e. extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience). Researchers are beginning to extend the model to judgments of other constructs, including personal values and moral character, risk-taking, and emotions. The model could be further extended to apply to judgments of empathy and perspective-taking. Such an extension would allow researchers to examine levels of accuracy for constructs other than personality traits and would generate important information about the generalizability of previous findings for additional constructs. Furthermore, all of these constructs could be examined in both children and older adults, as the existing research has been conducted mainly on college students and young adults.

Research on meta-accuracy, or how accurate people are about how others see them, could also incorporate the process and moderators of RAM. Research by Erika Carlson and R. Michael Furr (2013) has examined how meta-accuracy relates to information quantity and quality, but explicitly examining meta-accuracy within a RAM framework is likely to lead to new research questions and insights. For example, research could explore whether the moderators work in the same ways for meta-accuracy as they do for accuracy, and the extent to which the process of making an accurate judgment generalizes to making an accurate meta-judgment.

Some research has started to examine the consequences of accuracy as they relate to good judges and good targets, with a consistent finding that the ability to both judge and be judged accurately is related to several beneficial outcomes. For example, judging strangers as similar to the average is related to agreeableness, life satisfaction, positive affect, interpersonal control, and interpersonal support; whereas being a good target is related to psychological adjustment and social status. Additional research is needed to examine how these moderators relate to other important variables and to examine the direction of a causal link between the moderators and these variables.

A final future direction is to begin to examine how the moderators interact with each other to influence levels of accuracy. Some work exists in this area, primarily in terms of the interaction between the good trait and good (quality) information moderators. Additional questions such as the following could be addressed: Are judges with certain characteristics especially well-suited to detect cues to certain traits? What types of characteristics benefit the most from increased information quantity?

See Also

David Funder
Emotional intelligence
Lee J. Chronbach
Self-other Interjudge Agreement; Theory of Accuracy

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Rejection Sensitivity

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Rejection Sensitivity Defined

Rejection sensitivity is a cognitive-affective individual difference such that individuals with higher levels of rejection sensitivity are more likely to worry about rejection occurring, perceive ambiguous situations as involving rejection, and react negatively to instances of rejection (Feldman & Downey, 1994). A rejection sensitive individual will view relationships from the lens of a working model in which rejection is a constant threat and something to be strongly avoided.

Explanations of Rejection Sensitivity

The concept of rejection sensitivity stems from Attachment Theory and Social Cognitive theory. According to Attachment Theory, children form working models of how relationships function from their relationship with their parents. Rejection sensitivity was first described in research on childhood exposure to family violence and its later impact on adult relationships. Research on rejection sensitivity and attachment has shown that individuals with higher levels of rejection sensitivity are more likely to be insecurely attached. That is, individuals with anxious-avoidant or anxious-ambivalent attachment styles are more likely to score higher on rejection sensitivity than individuals with secure attachment (Feldman & Downey, 1994).

In addition to Attachment Theory, Rejection Sensitivity derives from work on Social Cognitive Theory. Social Cognitive Theory describes the components of working models: encoding, expectancies, values, and strategies. In other words, Social Cognitive Theory explains how individuals make sense of and react to their social worlds. Specifically, individuals with higher levels of rejection sensitivity interpret the world in a way that matches their prior experiences with rejections in relationships, which then reinforces their rejection sensitivity toward future experiences (Feldman & Downey, 1994).

Measurement of Rejection Sensitivity

Rejection sensitivity is most commonly measured using the Rejection Sensitivity Questionnaire (RSQ; Feldman & Downey, 1994). This questionnaire provides participants with 18 ambiguous social situations in which rejection could occur. For example, one situation describes asking a parent to come to a special occasion (Feldman & Downey, 1994). For each social situation, participants are asked two questions. First, they are asked how concerned or anxious they would be that the character in the situation would reject them. Second, they are asked how likely the character would be to accept them (or the request they made). Researchers calculate the rejection sensitivity score by reverse-scoring the likelihood items and multiplying them by the expectancy items. Thus, the rejection sensitivity scores reflect anxiously expecting rejection across a set of social situations.

Impacts of Rejection Sensitivity

Rejection sensitivity has a range of associated impacts in both romantic and non-romantic contexts. In romantic contexts, a higher level of rejection sensitivity in one romantic partner is associated with less satisfaction in the relationship for both partners. In fact, rejection sensitivity can be seen as a self-fulfilling prophecy such that expecting rejection seems to elicit it. Specifically, following conflict, partners of rejection sensitive women become more withdrawn and critical, which leads to lowered relationship satisfaction for both partners. In addition, rejection sensitive women are more negative during conflict, and their partners are angrier after conflict (Downey, Freitas, Michaelis, & Khouri, 1998). Thus, a rejection sensitive partner can be caught in a cycle of expecting rejection and therefore receiving more rejection. Furthermore, couples with a rejection sensitive member are more likely to break up than couples without a rejection sensitive member (Downey, Freitas, et al., 1998).

The influence of rejection sensitivity on relationship outcomes is often associated with distinct gender differences. For example, rejection sensitive romantic partners who are male are seen as hostile, whereas rejection sensitive romantic partners who are female are seen as jealous by their romantic partners (Downey & Feldman, 1996). In addition, women high in rejection sensitivity are more likely to engage in self-silencing (i.e. not voicing one's opinion if it would contradict a partner's opinion) to accommodate a romantic partner and feel greater hostility following rejection by the partner (Romero-Canyas, Reddy, Rodriguez, & Downey, 2013).

Rejection sensitivity is also related to aggression and violence. First, rejection sensitivity mediates the relationship between childhood exposure to family violence and having insecure adult attachment (Feldman & Downey, 1994). Second, having higher levels of rejection sensitivity is associated with engaging in aggressive and violent behavior. For example, men high in rejection sensitivity who are strongly invested in having a romantic relationship are more likely to report engaging in dating violence (Downey, Feldman, & Ayduk, 2000). Furthermore, rejection sensitivity mediates the relationship between experiencing rejection and engaging in aggressive behavior toward a stranger (Ayduk, Gyurak, & Luerssen, 2008). Rejection sensitivity is also implicated in aggressive behavior in children. Specifically, rejection sensitivity predicts how children will feel in a situation involving an

ambiguous social rejection and is associated with more aggressive behavior toward peers in school. Children who angrily expect rejection feel more distressed than children without those angry expectations when they are told that a friend did not want to do an activity with them. Furthermore, children with angry expectations of rejection show lowered academic performance throughout the year and engage in more antisocial behavior than children without angry expectations of rejection (Downey, Lebolt, Rincón, Rincón, & Freitas, 1998).

Forms of Rejection Sensitivity

Rejection sensitivity has been used as an individual differences construct in both children and adults. The foundational research on rejection sensitivity examined the influence of it on adults (Downey & Feldman, 1996), but later examinations extended to include children. A children's rejection sensitivity questionnaire has been created with child-appropriate rejection situations (Downey, Lebolt, et al., 1998). As with the adult-version, the children's rejection sensitivity questionnaire asks participants about how they would feel if the character in the situation rejected them and how likely rejection is to happen (Downey, Lebolt, et al., 1998). Rejection sensitivity can also occur in older adults when they anxiously expect rejection due to their age: this is termed age-based rejection sensitivity. This form of rejection sensitivity is positively associated with loneliness and depression and negatively associated with life satisfaction, social functioning, and physical health (Chow, Au, & Chiu, 2007). In other words, individuals with higher levels of age-based rejection sensitivity show poorer mental and physical health.

Two other status-based forms of rejection sensitivity are gender rejection sensitivity and race rejection sensitivity. Gender rejection sensitivity is when individuals anxiously expect rejection due to their gender (e.g. a woman expecting not to be called on in a physics class because of biases toward women). Gender rejection sensitivity predicts feeling alienated, reduced motivation, self-doubt, and less willingness to meet with an unwelcoming professor. Gender rejection sensitivity also predicts engaging in academic self-silencing, or not voicing oneself in academic settings to avoid conflict and rejection (London, Downey, Romero-Canyas, Rattan, & Tyson, 2012). Finally, race-based rejection sensitivity, or anxiously expecting rejection due to one's race (e.g. an African American man expecting an interview to go poorly because of biases toward African Americans), is associated with lower well-being, less belongingness, and feeling less positive toward peers and professors (Mendoza-Denton, Downey, Purdie, Davis, & Pietrzak, 2002). Each of the forms of rejection sensitivity has its own questionnaire, all of which use the same format as the Rejection Sensitivity Questionnaire. That is, there are multiple social scenarios and participants indicate their anxious expectations and estimates of the likelihood of rejection.

Similarities of Rejection Sensitivity to Other Constructs

Although rejection sensitivity shares similarities with other individual differences related to interpersonal functioning, it is a distinct construct. For example, social anxiety (see Social Anxiety and Social Anxiety Disorder), self-esteem (see Self-esteem, Theory of), neuroticism

(see Neuroticism), and extraversion (see Extraversion) are all related to rejection sensitivity. That is, individuals who are more rejection sensitive are likely to have higher levels of social anxiety and neuroticism and lower levels of self-esteem and extraversion. However, rejection sensitivity is better able to predict how individuals expect and interpret social rejection (Downey & Feldman, 1996), and the relationship between rejection sensitivity and rejection-related outcomes is not dependent on the above mentioned constructs.

See Also

Extraversion
Neuroticism
Self-esteem, Theory of
Social Anxiety and Social Anxiety Disorder

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Resilience Theory of, Not Just the Trait Dimension

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Definition and Approaches to Studying Resilience

Resilience has numerous meanings in prior research, but generally refers to a process reflecting relatively *positive adaptation* in the context of significant *risk* or adversity. Underlying this broad definition are two specific conditions: exposure to significant risks and evidence of maintenance or recovery of adaptive functioning despite serious threats to development. Historically, resilience research has been largely the purview of developmental investigators dealing with early childhood and adolescence. In early investigations of childhood resilience (e.g. Garmezy, 1985; Rutter, 1987), risk factors were defined as discrete experiences that carried high odds for maladjustment, such as parental psychopathology or community violence. In later work (e.g. Luthar & Cushing, 1999; Masten & Wright, 1998), the concept of risk was broadened to include cumulative risk indices or tallies of adverse life events over time; acute trauma and chronic life difficulties, such as sexual abuse or neighborhood disorganization; and factors that statistically predicted later maladjustment in the general population (e.g. low birth weight).

Positive adaptation, the second core component of resilience, represents adaptation that is substantially better than would be expected given exposure to significant risk. Although indicators of positive adaptation have varied across the context, population, and risk factor under study, extant conceptualizations have generally included competence under challenge. Among young children, for example, competence has been defined in terms of the development of a secure attachment with primary caregivers, and among older children, in terms good academic performance and positive relationships with peers (Luthar, Cicchetti, & Becker, 2000). A central objective of resilience researchers is to identify *protective factors* that served to ameliorate the adverse effects of risks. On the basis of early reviews of the childhood and adolescence literature, Garmezy (1985) described three major categories of protective factors: *individual attributes*, such as an engaging "easy" temperament or good self-regulation skills; *relationships*, including those with parents and teachers that are high in warmth and support on the one hand, and appropriate

control or discipline on the other; and *external support systems*, such neighborhoods that are high in levels of cohesion and community belonging. These protective factors have been reliable in predicting positive psychological functioning following adversity.

At the other end of the life course is the growing literature on *optimal aging* (Baltes & Baltes, 1990; Rowe & Kahn, 1987) that has delineated distinct changes in adaptive capacity across multiple life domains. This work underscores distinctions between resilience as *recovery* from the negative consequences of adversity, and resilience as *maintenance* of relatively stable, health levels of psychological and physical functioning in the face of cumulative risks (Ong, Bergeman, Bisconti, & Wallace, 2006). Other research has conceptualized resilience as distinct from the process of recovery (Bonanno, 2004). This perspective derives from studies demonstrating that resilience and recovery are distinct outcome trajectories that are empirically separable following highly aversive events such as interpersonal loss and psychological trauma. Finally, several lines of adulthood research emphasize the need to assess positive outcomes such as psychological well-being and growth in response to challenge (Ryff, Singer, Love, & Essex, 1998). Studies within this tradition have elaborated how numerous life course factors – including age-graded influences (e.g. caregiving), normative transitions (e.g. bereavement), nonnormative events (e.g. military deployment), and chronic life difficulties (e.g. economic disadvantage) – are linked to various aspects of adult mental and physical health.

Methodological Challenges and Future Directions

Both theoretical and empirical work suggest that comprehensive understanding of resilience requires a broad integrative framework that addresses the need for (1) reliable and theory-driven measures of positive health and well-being, (2) study designs that link information at different levels of analysis, (3) methodological approaches that facilitate characterizations of life histories of resilience in the face of adversity, and (4) intervention strategies that foster resilience.

Defining and Measuring Well-Being

In the resilience literature, most researchers agree that it is important to consider adaptive functioning more broadly beyond just the avoidance of psychopathology or negative developmental outcomes. A growing research interest seeks to delineate the specific components of well-being that are central to resilience as the capacity to thrive and flourish, and not just avoid illness and maladjustment. This research integrates multiple dimensions of *hedonic* (i.e. life satisfaction, affect balance) and *eudaimonic* (i.e. self-acceptance, personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy) or evaluative well-being.

Linking Resilience to Biology and Neuroscience

Both child and adult literatures emphasize the need to bring physical health into the conception of resilience, thereby underscoring a joint emphasis on the mind and the body in understanding positive adaptation to stress. A key task of this approach is to identify the

biological processes underlying the capacity to thrive, flourish, and be well, particularly in the face of adversity. The central questions of this research are two-fold: First, what are the biological underpinnings of resilience? Second, is resilience at the biological level fostered by specific affordances in the social and emotional environment? Currently, little is known about the circumstances of life – the combined impact of major, chronic, and daily stressors – that may leave the brain vulnerable to future psychopathology.

Results of human and animal studies clearly establish that resilience connotes substantial differences in neurotransmitter systems, endocrine systems, synaptic plasticity and circuits, and even the electrical properties of individual neurons (Russo, Murrough, Han, Charney, & Nestler, 2012). Elucidating the neural mechanisms that directly drive positive or negative adaptation across different risks conditions provides a framework for understanding the role of genetic contributions to vulnerability and a protective mechanisms that ultimately may allow researchers to target therapeutic interventions to strengthen particular brain systems implicated in resilience (Caspi & Moffitt, 2006; Greenberg, 2006). This area of investigation is actively developing, and a growing number of functional magnetic resonance imaging studies are specifically probing resilience, revealing both structural and dynamic neural substrates of positive adaptation (Van der Werff, van den Berg, Pannekoek, Elzinga, & van der Wee, 2013).

Resilience as Life History

Central to understanding resilience is compiling *life history* data, where the objective is to work in the middle ground between traditional *idiographic* and *nomothetic* approaches. This work has been guided by the overarching question of what turning points define well-being and hone resilience A guiding principle of this work emphasizes the in-depth investigation of core themes in individuals' lives, how such themes are grounded in social, cultural, historical, and familial contexts, and the extent to which events and behaviors in context shape the varying life-history pathways through adversity and to resilience. The qualitative aspect of this research affords a more nuanced understanding of how diverse events and experiences across multiple life domains influence life history, and how such histories are linked with later resilience.

Fostering Resilience

In view of accumulated evidence, there is a need for effective interventions that target not just children and adults, but also their families and communities. Among leading candidates for fostering resilience are the role of family supports (e.g. nurturing intergenerational ties) and neighborhood resources (e.g. coalitions, faith-based organizations). Likewise, emergent infrastructures (e.g. the built and natural environment, social capital, civil governance) that foster and sustain a coherent sense of community, while also aiding in recovery from crisis and disaster may contribute to community resilience (Cacioppo, Reis, & Zautra, 2011). It is critical, however, that future studies examine the extent to which these factors are salient in the specific risk condition examined (Luthar et al., 2000). Detailed analyses of these and other variables will deepen our understanding of the resilience process.

See Also

Personality and Well-Being
Resiliency and Hardiness

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Schemas, Theory of

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A schema is a cognitive structure that helps organize existing and new knowledge. Schemata, or now more popularly referred to in the plural as schemas, adapt to time and context to make meaning out of new events by referencing previously acquired knowledge. The integration of knowledge into pre-existing cognitive structures helps simplify one's world by making expectations clearer and predictions easier. Through this process of integration, the links to different concepts begin to expand, resulting in more complex networks of related ideas. For example, individuals understand themselves because they have knowledge of themselves across different contexts, but this knowledge also is influenced by their schemas of relationships. Given that schemas play such an intricate and important role in how individuals make meaning of their environment and experiences, the topic has produced several extensive lines of research.

Immanuel Kant was perhaps the first to introduce this construct when he described transcendental schemas in the *Critique of Pure Reason*. Kant argued that the mind has a template that links abstract thoughts to more concrete ideas. More importantly, Kant argued that these processes are an attempt to logically make meaning within time and context based on intuitions. This conceptualization laid the foundation for early psychological research on schemas, which began in the early twentieth century with work by gestalt and cognitive psychologists.

Gestalt psychologists took an interest in schemas because they wanted to better understand how people perceive their environment, stressing that the relationship between single perceptions and the larger cognitive processes. In his 1932 book, *Remembering: A Study in Experimental and Social Psychology*, Frederic Bartlett (1932) published the first psychological work to use the term schema. His goal was to outline empirically the processes proposed by Kant in regards to memory and cognitive processes. He suggested that previous knowledge helps to filter and organize acquired information and make sense of it, a process that occurs so frequently these networks are constantly changing.

Bartlett's outline of how schemas evolve led to an extensive line of research regarding learning and development. In his 1952 book, *The Origins of Intelligence in Children*, Jean

Piaget argued that people either assimilate information into existing schemas because it is consistent with previous experiences, or they alter their schemas because of an inconsistency between the past and present information. Piaget's application of schematic theory focused on sensory motor development in the first years of life, and Schmidt (1975) later expanded upon this work by using the theoretical framework of schemas to provide a strong empirical argument against loop-theory, a comparator model of learning from the behaviorist tradition. Schmidt's work helped to generate a competing theoretical perspective based on cognitive processes that continues to be pursued and supported today.

Bartlett also proposed a role for social interactions in schemas, specifically that others influence the information that is being processed and how it is processed. Kuethe (1964) argued that social interactions provide rewards to individuals by providing them with information that then can be applied to future social interactions. For example, one's understanding of romantic partners is based on witnessing romantic interactions (e.g. between parents, grandparents, friends) or experiencing interactions with one's own romantic partners (e.g. arguing with one's spouse).

Self-schemas

The importance of individual characteristics on the development, interpretation, and use of schemas is no more influential than when it is applied to the self. Markus (1977) contends that a vast majority of information individuals process is relevant to the self. The primary purpose of self-schemas is to provide consistency in how individuals process cognitive information about themselves. Although self-schemas are an important component of maintaining a consistent self-concept, these schemas are just as complex as any of the aforementioned schemas. Indeed, the self-schema are a major component of personality. Markus suggested that if individuals have a developed self-schema, they then: (1) are able to easily process information about themselves within a given domain, (2) can support this information with behavioral references from that domain, (3) can predict behavior within that domain in the future, and (4) are able to resist contradictory information about themselves.

Markus (1977) examined the influence of self-schemas in greater detail by categorizing individuals as schematics vs. aschematics based on their responses to scale items about a particular dimension as well as the importance of that dimension to their self-description. Schematics rate themselves very high or low on a series of related adjectives or semantic differentials and also rate these traits as high in importance. Aschematics do not endorse either pole (i.e. they score closer to the midpoint) and rate the traits as low in importance. Markus found that schematics – specifically in her study, people who were labeled as being schematic for independence or dependence – self-categorized more quickly, had more elaborate behavioral descriptions in line with their self-schemas, and predicted future behaviors in line with their self-schemas would be more likely than did aschematics who tended not to significantly differentiate between independence and dependence in their response latencies, descriptions, and predictions.

Given the implications of schemas for personality, several clinical frameworks have been developed in an attempt to resolve issues that occur when self-schemas go awry. The two most prominent theories that examine the influence of schemas in a cognitive setting are Beck's schema theory and Young's schema therapy. Both of these theories propose that

clinical issues are due to the development of self-schemas. According to Aaron T. Beck (see Aaron Beck), negativity becomes ingrained in the cognitive structure of a schema that then becomes either hypervalent or inactive depending on the situation in which the schema is activated. Furthermore, Beck argued that the content of the schemas is what contributes to the symptoms of the disorder (e.g. depressive schemas consist of negative events or information).

Similarly, according to Young's schema therapy, schemas play an important role in psychological disorders, so targeting schema can be an effective form of treatment. The purpose of the therapy treatment is to evaluate the developmental trajectories of schemas by focusing on the importance of interpersonal relationships and how to stop the negative patterns they produce (Young, Klosko, & Weishaar, 2003). In assessing this recently developed therapy, de Klerk, Abma, Bamelis, and Arntz (2017) found that both patients and therapists evaluated the benefits of schema therapy positively, but many believed that the length of the therapy was too fast paced to accomplish all of its goals.

Individual Differences

Personal characteristics are not only affected by but also in turn influence schema construction and use. For example, in Carlson and Price (1966), participants categorized human silhouettes and geometric forms. The findings supported Kuethe's argument for general organizational patterns of classification in social schemas, but personal characteristics (e.g. perceivers' age, gender, and the interaction between age and gender) also influenced people's organization of the categories. More specifically, older age was associated with more concrete categorizations, men were more likely to categorize children and mothers closer together than women did, and older men were more likely to make vertical categorizations than younger men.

Furthermore, individual differences also influence how people develop and use self-schemas. Swann (1983) argued that prior social experiences help individuals formulate an understanding of themselves as others see them and integrate that understanding into their self-identity. Consequently, self-schema affect people's choices of whom to interact with and how they communicate with those individuals. In an effort to maintain consistency about the self, individuals behave in a way that produces feedback consistent with their self-schema. For example, if an individual wants to be perceived as professional, then he or she will wear business attire in the hopes of being complimented or recognized for being professional.

Although the evidence that self-schemas influence the way that individuals interact with others is consistent, the evidence about how self-schemas influence the interpretation of others is mixed. Fong and Markus (1982) found that self-schemas influenced the types of information that individuals tried to gather about a target. For example, individuals who rated themselves as extraverted were more likely to select extravert-oriented questions for a target. Consistent with these findings, Green and Sedikides (2001) found that behavior predictions about a target varied based on the perceivers' self-schema. However, their findings suggest the use of self-schemas in these predictions was the result of ambiguity in a target's personality. For instance, when personality traits were more apparent, such as morality, people relied less on their self-schemas to understand the target.

Conclusions and Future Directions

In sum, schemas serve a variety of important functions that allow people to understand not only themselves and others but also the effects of time and context. Early research merely attempted to address how the cognitive processes associated with schema construction help individuals make meaning. Later researchers focused on development and learning processes to understand how new and old information are integrated. Current research is focused more on self-presentation in the digital world (e.g. Ahadzadeh, Sharif, & Ong, 2017) and how relational schemas influence romantic relationships (e.g. Lemay & Razzak, 2016). Nevertheless, research is still attempting to ascertain just how much impact schemas may have on various psychological outcomes. One large unanswered question is: Can you examine a single schema in isolation, and if so, what are the practical implications of this research?

See Also

Aaron Beck
Culture and Personality
Implicit Models of Personality
Priming
Self-concept, Expressions of the
Unconscious Processes, Expression of Personality Process

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Self-Determination Theory

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Self-determination theory (SDT) is an empirically based, organismic theory of human nature and behavior that focuses especially on motivation, growth, personality development and wellness (Ryan & Deci, 2017). It is rooted in the assumption that humans are inherently curious, self-motivated and growth-oriented beings that are not only reactively responding to environmental stimuli but actively self-regulate their lives toward growth and integrity following their internal motives, goals, and values. At the same time the theory acknowledges that human vitality and self-motivation can be significantly diminished in certain contexts and following certain conditions of upbringing. Accordingly, the theory is especially interested in identifying the environmental and social conditions in families, classrooms, workplaces, and other life domains that foster or undermine individual's self-motivation, vitality, and wellness. In other words, the theory aims to identify what conditions and contexts most consistently lead to human flourishing.

The work toward the theory started in early 1970s when Edward L. Deci demonstrated in a number of experiments that externally rewarding certain behavior could undermine people's intrinsic motivation to engage in such behavior when rewards were absent (e.g. Deci, 1971). This was in stark contrast to the behaviorist assumptions dominant at that time according to which human behavior is to a large degree determined by external reinforcers. Nevertheless, the empirical evidence for the role of intrinsic motivation in explaining human behavior started to accumulate, and in the 1980s Deci – together with Richard M. Ryan, the second founding father of the theory – formalized the theory, and extended it beyond intrinsic motivation to a general theory of motivation and wellness (Deci & Ryan, 1985a). Since the early work by Deci and Ryan, they have been joined by a growing number of researchers that have expanded the theory and taken it from personality and social psychology to encompass developmental and clinical psychologies and more recently also neuropsychology and behavioral economics. Especially in the last two decades the theory has grown into one of the most cited psychological theories of human motivation and wellness and hundreds of empirical papers have been published on the theory, both on its general nature and as applied to various context such as learning and education, workplace

motivation, sports and exercise, games and virtual worlds, health care and psychotherapy as well as cultural and religious socialization.

While the metatheory or basic orientation behind SDT emphasized the inherently active and growth-oriented nature of human beings, six more specific and empirically testable mini-theories have been developed around which the theory is organized (Ryan & Deci, 2017).

The oldest mini-theory within SDT is the *cognitive evaluations theory* (CET) that focuses on how social environments facilitate or undermine intrinsic motivation, and through that, high-quality performance and well-being (Deci & Ryan, 1980). According to CET, when extrinsic rewards, evaluations, surveillance, or feedback are perceived as controlling, this leads to a more external perceived locus of causality and thwarts the person's sense of autonomy and intrinsic motivation. This is often harmful as research has shown that when people are intrinsically motivated, they tend to learn more deeply, be more creative, be more persistent, and perform better in tasks requiring high-quality engagement. At the same time, research has identified other features of the environment that similarly affect intrinsic motivation such as how much information the person has about one's performance and how much competence one experiences. CET thus deals with how environments affect experiences of both competence and autonomy, and thus support or undermine intrinsic motivation.

Organismic integration theory (OIT), the second mini-theory of SDT, describes the process of integration through which extrinsically motivated behaviors can become autonomous. According to the theory, humans have inherent tendencies to internalize and integrate social and cultural regulations, but certain factors in the environment can promote or inhibit this process of integration. OIT distinguishes between amotivation, and four types of extrinsic motivational regulations: *external regulation* is focused on complying with externally controlled rewards and avoiding punishments; *introjected regulation* is about internally controlling one's behavior related to contingent self-esteem and avoidance of guilt; *identified regulation* is motivation driven by personal valuing and finding worth in actions and *integrated regulation* describes motivation that is fully self-endorsed and well assimilated with one's other values and identifications. The regulations form a continuum (e.g. Ryan & Connell, 1989) and vary systematically in their relative autonomy, with the latter ones being more autonomous and accordingly typically associated with higher quality behavior and persistence. Although need-supportive conditions such as providing meaningful rationale and highlighting choice facilitates more autonomous forms of internalization, conditions that thwart need satisfaction can inhibit such internalization and anchor motivation in more controlled forms.

Causality orientations theory (COT) a third mini-theory, focuses on the personality aspects of SDT and the individual differences in how people orient to their environment. Three general causality orientations are recognized within COT (e.g. Deci & Ryan, 1985b): Autonomy orientation means a propensity to organize behavior by orienting toward one's interests and values, and finding and generating contexts that support them. In contrast, controlled orientation means a propensity to pay attention to social controls and reward contingencies and organize one's behavior by either complying or aiming to defy them. Impersonal orientation, in turn, refers to a tendency to focus on obstacles, and lack of personal or general control over outcomes. The research has looked at differences between

people as a function of how much they emphasize each of these three orientations, and how these orientations can be triggered by motivational primes. The findings in general point toward autonomy orientation, as compared to the two other orientations, leading to more autonomous engagement, more need satisfaction, and better well-being, among other positive outcomes. For example, people high in autonomy orientation can better maintain their intrinsic motivation even when faced with externally controlled contingent rewards (Hagger & Charzisarantis, 2011).

Basic psychological needs theory (BPNT), the fourth mini-theory, aims to identify the innate psychological needs the satisfaction or thwarting of which significantly influences human growth, integration, and wellness. Psychological needs are understood as necessary nutriments that humans universally need for ongoing psychological development and wellness. BPNT has thus far recognized three such needs: autonomy as a sense of volition and internal locus of causality, competence as a sense of effectance, mastery, and growth, and relatedness as a sense of being connected to and cared for by others. Research has shown that all three of these needs have a direct relation with well-being, explaining together a significant amount of variance in people's sense of wellness, vitality, and meaningfulness. A similar pattern of results – need satisfaction leading to wellness – has been found both when looking at between-person differences and within-person fluctuations of need satisfaction (e.g. Reis et al., 2000), and also cross-culturally, and in various contexts ranging from athletes to students and employees.

The fifth mini-theory, *goal content theory* (GCT), looks at what aspirations people have in life and how the nature of these goals affects their wellness. GCT shows that people's life goals can be organized into two empirically distinguishable groups, intrinsic and extrinsic (e.g. Kasser & Ryan, 1996). Intrinsic goals are rewarding in their own right and closely associated with psychological needs while extrinsic goals are more closely connected to contingent satisfactions and approval. Typical intrinsic goals are personal development, community involvement, and meaningful relationships while typical extrinsic goals include wealth, fame, and attractive image. The research consistently shows that both aspiring for and attaining intrinsic goals is positively associated with well-being, while aspiring for and attaining extrinsic goals typically either has no relationship with well-being or is even positively associated with certain forms of ill-being (e.g. Niemiec et al., 2009).

The newest mini-theory within SDT is *relationship motivation theory* (RMT) that focuses on what makes high-quality interpersonal relationships possible. It especially looks at how respect for autonomy facilitates such high-quality relationships and how autonomy and relatedness are intertwined and synergistic in truly responsive, mutually satisfying relationships. RMT suggests that people have an intrinsic need to seek relationships, but while experiencing autonomous motivation within one's relationship contributes to high-quality relationships and both participants' well-being, factors such as conditional regard can hurt both the quality of the relationship and well-being of the partners (e.g. Knee et al., 2005).

Emerging areas for research on SDT include the neurological underpinnings of intrinsic motivation (e.g. Murayama et al., 2010) as well as how autonomy-supportive and need-satisfying developmental environments give rise to "the better angels of our nature" and more orientation to prosociality (e.g. Martela & Ryan, 2016), while chronic need thwarting can conduce to various psychopathologies and the darker elements of human nature such as prejudice, selfishness, and aggression.

While SDT originated in the United States, it has been increasingly studied cross-culturally, with research demonstrating that the basic tenets suggested by the theory, such as internalization and autonomy being related to well-being, hold not only in Western countries, but across cultures and societies (e.g. Chirkov et al., 2003). Accordingly, the theory claims to have identified conditions for psychological wellness, growth, and flourishing that are part of the human nature and not just cultural. This makes SDT not only a descriptive theory of human behavior, but also a normative theory that can be used to evaluate various contexts – such as organizations, societies and cultures – for how autonomy-supportive and need-satisfying these contexts are. In this sense, the theory has been used to make recommendations about how to optimally structure schools, clinics, workplaces, and societies more broadly to support engagement, vitality, wellness, and flourishing.

See Also

Maslow's Hierarchy of Needs
Needs, McClelland Theory of
Personality and Well-Being

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Self-efficacy Theory

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In the late 1970s, Albert Bandura (see Albert Bandura) developed a social learning approach intended to provide a unifying theory of successful coping and goal achievement. Research on self-efficacy (see Self-efficacy) expanded over subsequent decades, and by 2019, Bandura's two seminal self-efficacy publications (1977, 1982) alone had over 88,000 academic citations, spanning applied research to theoretical insights.

Bandura theorized that goal striving required at least two fundamental ingredients: (1) *outcome expectations* reflect one's belief that adequately performing a specific behavior will lead to a specific outcome, and (2) *efficacy expectations* reflect one's belief that one can exert those specific behaviors in the first place. In other words, outcome expectations are the belief that effective methods exist to complete tasks (i.e. contingency or cause-outcome beliefs), and efficacy expectations reflect the belief that one can personally use those methods effectively (i.e. competence or mastery beliefs). Although Bandura was clear on the distinction between the two components, subsequent use of the term self-efficacy has not been. Self-efficacy often gets used interchangeably with controllability, which can cause some confusion in the literature particularly in the form of conflicting results. As Ellen Skinner (1996) explains, self-efficacy originally referred only to efficacy expectations but has evolved to integrate both outcome and efficacy expectations (although studies seldom explicitly manipulate or measure both). Thus contemporary usage of self-efficacy assumes that perceiving contingency between actions and consequences is inherently part of having self-efficacy.

Theory Issues in Measurement

In accordance with this modern usage, measures of self-efficacy like the Self-Efficacy Scale (Sherer et al., 1982) clearly mix contingency and competence. Consider the item "When I make plans, I am certain I can make them work." Endorsement of such a proposition implies believing both that plans have a meaningful likelihood of affecting subsequent

tasks (outcome expectations) and believing that one can enact such plans with reasonable competence (efficacy expectations).

Self-efficacy theory posits that self-efficacy beliefs can be very specific (e.g. computer self-efficacy, Compeau & Higgins, 1995) or very generalized (e.g. Sherer et al.'s Self-Efficacy Scale). Content-specific scales that measure perceived competence in particular domains may yield greater predictive utility, and the more specific, the better. For example, dividing teaching self-efficacy into separate subscales measuring teachers' confidence in managing student behavior, effectively providing instruction, and inclusively engaging all students in learning (Tschannen-Moran & Woolfolk Hoy, 2001) yielded important distinctions that would have been lost using a more generalized measure (Klassen & Chiu, 2010). The subscales varied uniquely across classroom teaching level (higher management and engagement self-efficacy for people teaching lower grade levels) and teacher gender (women had lower management self-efficacy than men), with lower self-efficacy predicting lower job satisfaction. These results align with self-efficacy theory's prediction that self-efficacy beliefs can be quite specific to particular contexts and/or tasks.

Another important theoretical question is the relationship between self-efficacy and other self-constructs – in particular, self-esteem. Sherer et al. (1982) have explored the degree of overlap between self-efficacy (beliefs about one's capability of successfully executing a behavior) and self-esteem (the degree to which one evaluates oneself favorably; see Self-esteem, theory of). The Self-Efficacy Scale is moderately associated ($r = .51$) with trait self-esteem, indicating important overlap without suggesting that the constructs are interchangeable. The theoretical distinction is important because self-efficacy and self-esteem often are confused, presumably because they both involve positive perceptions of the self – either as *competent* (self-efficacy) or as *good* (self-esteem). This confusion is evident in Heatherton and Polivy's (1991) popular state self-esteem scale (see Self-esteem, Assessment of), which contains items such as "I feel confident about my abilities." The Self-Efficacy Scale also is positively correlated with internal locus of control (see Locus of Control) and social desirability (see Social Desirability).

Antecedents

Bandura (1977) suggested four antecedents of self-efficacy. *Performance accomplishments* increase self-efficacy when individuals reach specific success conditions, suggesting to such actors their own underlying ability at a task. *Vicarious experiences* involve modeling by skilled individuals, such as when watching a target person complete a task without major setbacks occurring makes the task seem more doable. *Verbal persuasion*, such as simply being told that one is "useless" or "highly capable," can influence global self-efficacy. *Physiological factors* also may affect self-efficacy because people might use stress/anxiety responses as clues to judge their capability. Although these factors can influence self-efficacy over time, Bandura (1997) actually hypothesized that self-efficacy should be quite stable across the lifespan. Nonetheless, Klassen and Chiu (2010) point to several investigations demonstrating changes in self-efficacy attributable to interventions such as teacher-training programs and years of career experience.

Theoretical Impacts

Self-efficacy has played a role in several psychological theories, of which we provide only a few influential examples. Self-efficacy was key in developing the theory of planned behavior (TPB; Ajzen, 1991), an important theory in attitude-behavioral research. TPB mapped the independent roles of attitudes (positive or negative evaluations of the behavior), subjective norms (beliefs about how the behavior is evaluated by people personally important to the actor), and perceived behavioral control (how capable the actor believes himself or herself to be of engaging in the particular behavior, or self-efficacy) in predicting the likelihood of forming behavioral intentions and consequently engaging in that behavior. Perceived behavioral control plays two roles in the model: An increased sense of behavioral control increases the intention to engage in a behavior, and it also can influence the probability of engaging in the behavior independently from intentions. Both paths make intuitive sense: People should be less likely to form intentions to engage in behaviors that they believe themselves to be incapable of performing. But even with a firm intention to perform some action, people who believe themselves incapable of succeeding are unlikely to follow through with their intentions. Ajzen (2002) later explicated how self-efficacy factors into the TPB, with both self-efficacy and controllability (the extent to which a behavior's performance is in the actor's control in the first place) separately contributing to perceived behavioral control.

Self-efficacy also is relevant to the reformulated helplessness theory of depression (Abramson, Seligman, & Teasdale, 1978). According to this theory, people become depressed to the extent that they learn that environmental contingencies cannot be controlled. Two kinds of helplessness are described: Universal helplessness involves believing that responses and outcomes generally are unrelated in oneself or in others. Personal helplessness involves believing that only one's own actions are ineffectual. As Skinner (1996) explains, universal helplessness is comparable to lower outcome expectations or contingency beliefs ("it can't be done"), whereas personal helplessness is comparable to lower efficacy expectations or competence beliefs ("I can't do it"). Contemporary views of self-efficacy would suggest that both kinds of helplessness are relevant to self-efficacy deficits although only the latter is truly about mastery.

Practical Applications

Self-efficacy theory has generated many interventions and applied studies. A major area of interest with self-efficacy has been enhancing performance. Bandura (1993) has suggested that self-efficacy's positive effects on performance occur through four channels: (1) *cognitive*, such as self-efficacious individuals actually deploying the cognitive skills that they possess; (2) *motivational*, such as self-efficacy increasing beliefs about the possibility of success thus bolstering the application of effort; (3) *affective*, including lower self-efficacy's contribution to depression, which in turn hampers performance; and (4) *selection*, as when self-efficacy leads people to select more productive environments. This framework has great utility for understanding self-efficacy and provides guides for

predicting and influencing self-efficacy's operations. To assist a student with low self-efficacy, for example, one could use approaches that are cognitive (e.g. practicing the deployment of skills that a student actually possesses but is not using), motivational (e.g. providing realistic performance benchmarks to make success appear more possible), affective (e.g. introducing activities that increase positive affect), and/or selection based (e.g. planning with the student to approach environments in which productivity is more likely, such as a quiet study space). Indeed, Zimmerman (2000) reviewed many important consequences of self-efficacy on student performance. Self-efficacious students undertake more challenging tasks and set more ambitious goals, succeed more in course work, persevere more in the face of adversity, experience fewer severe emotional reactions after setbacks, and use more effective learning strategies.

Industrial psychologists have studied how self-efficacy can influence workplace performance in both laboratory and field studies (see Self-efficacy, Career). For example, Sherer et al. (1982) found that individuals with higher self-efficacy were more likely to be employed, had quit fewer jobs in their life, had been fired less often, and were more educated than were individuals with lower self-efficacy. It is easy to raise at least two theoretical hypotheses for these relationships: (1) People who believe themselves incapable of accomplishing tasks are presumably less likely to achieve higher education degrees, and (2) obtaining a university degree makes one feel highly capable both due to the prestige of the accomplishment and because of the objective skills that one acquires through such education. Stajkovic and Luthans (1998) meta-analyzed research from 114 studies and found a strong effect of self-efficacy on work performance. They noted that effects were somewhat smaller in field studies than laboratory studies, but this difference simply could be due to lab settings' additional control of nuisance variables. They also found that self-efficacy played a larger role for simple rather than complex tasks although self-efficacy provided a degree of benefit even for highly complex tasks.

Future Questions

One ambiguity in current self-efficacy research is the causal pathway by which self-efficacy exerts its effects. Although many important consequences of self-efficacy have been detected, the pathway in which they unfold remains unclear. For instance, do self-efficacious individuals set more ambitious goals *because* they are not afraid of emotional negativity in response to failure, or *because* they intend to use more effective learning strategies – thus making those goals seem more realistic? Some exploration of these and other purported mechanisms might be helpful in planning interventions to improve self-efficacy and for greater theoretical understanding of the construct. However, the present literature already offers a great deal of practical and theoretical advice for how individuals can learn – and their mentors, parents, and friends can help them learn – all that they are capable of doing and becoming.

See Also

Albert Bandura
Locus of Control

Self-esteem, Theory of
Self-efficacy
Self-Monitoring (to include the Self-Monitoring Scale), Assessment of
Social Desirability

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Self-esteem, Theory of

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Conceptualized

Self-esteem describes an individual's overall sense of self-worth or value. This evaluation encompasses both feelings about the self (such as, "I am worthy") and emotional states, such as pride or shame. Self-esteem may be differentiated from the self-concept by noting that self-esteem is based on an affective evaluation regarding the self, whereas one's self-concept encompasses thoughts and beliefs about the self. Self-esteem may be global (for example, "I'm a good person") or it may be domain specific (for example, "I'm great at basketball"). Additionally, self-esteem is regarded as a trait that is subject to short-term fluctuations. Thus, some individuals tend to have higher self-esteem than other individuals on a consistent basis. This is *trait* self-esteem, as it reflects an individual's generally tendency. Although trait self-esteem is fairly stable across time, fluctuations often occur based one's personal experiences. For example, should something positive occur, such as receiving a promotion at work, an increase in self-esteem is likely occur. Conversely, one may experience lower self-esteem when an adverse event occurs, such as losing one's job. This self-esteem that is responsive to stimuli is *state* self-esteem, as it reflects the individual's current state.

Measurement of Self-esteem

Self-esteem may be measured with either explicit or implicit measures. Self-report measures are most common. The most widely used measure is the Rosenberg Self-Esteem scale, developed by Morris Rosenberg in 1965. This scale consists of 10 items (for example, "I feel that I have a number of good qualities.") that require participants to indicate their level of agreement regarding themselves. Domain-specific scales have also been developed,

assessing self-esteem in areas such as academics or personal relationships. Overall self-esteem, as assessed by the Rosenburg scale reflects an individual's composite on the more domain-specific measures. State self-esteem may be manipulated for experimental purposes in the laboratory. For example, directing participants to focus on desirable aspects about their personality tends to create a temporary boost in self-esteem. Conversely, focusing on negative aspects of one's life tends to decrease self-esteem. Studies such as these allow researchers to explore factors that influence self-esteem, as well as examine differential reactions to self-esteem changes.

Since the 1980s, implicit measures of self-esteem have also been employed. These are based on the notion that individuals have cognitive associations that they are not consciously aware of, yet influence their behavior. As a result, individuals are quicker at making associations held more strongly in their memory. The chief advantage of using implicit testing is that it reduces the conscious biases of the participant by reducing their awareness of the relevant task. The most common of the implicit self-esteem measures is the Name-Letter Task, which finds that the more individuals like themselves, the greater preference for selecting letters that are used in their name (Nuttin, 1985).

Theories

Many theories have suggested that self-esteem is a basic human need. For example, Abraham Maslow included self-esteem in his hierarchy of human needs (see Maslow's Hierarchy of Needs), suggesting that psychological health was not possible unless one had the acceptance and respect of both others and him or her self. Humanistic psychologist Carl Rogers posited that many human problems originate from feelings of self-loathing and worthlessness. In his view, self-esteem could be regarded as not only a need, but a human right. Later work by Edward Higgins (1987) explored the theory of self-discrepancy, positing that individuals have multiple representations of the self, such as the ideal self and the actual self (1987). Self-discrepancy refers to the gap between these representations. A large gap between the actual self and the ideal self is associated with low self-esteem. Additionally, as this gap grows, self-esteem becomes increasingly lower (Moretti, & Higgins, 1990).

Early theories centered on the need for self-esteem and what effects variations in self-esteem produced, however these early theories failed to explain why self-esteem developed. More recent work has produced two predominant explanations for the development of self-esteem in humans. Sociometer Theory, advanced by Leary et al. (1995), suggests that humans are inherently social creatures that seek out the support and approval of other humans. As such, humans have developed a "sociometer" that allows one to detect acceptance and rejection by others, translating these as increased or decreased self-esteem. The second primary theory is Terror Management Theory. According to this perspective, humans are unique among animals in that there is conscious awareness throughout the lifespan that death is inevitable (Greenberg, Pyszczynski, & Solomon, 1986). To protect oneself from this paralyzing fear, humans construct beliefs (for example, religion) that provide them a sense of meaning and purpose. Thus, anxiety regarding one's own mortality is reduced through these beliefs.

Correlates of Self-esteem

Self-esteem is correlated with higher expectancies regarding success. As such, individuals high in self-esteem tend to approach challenges more confidently and see challenges as a way to demonstrate their abilities, whereas those lower in self-esteem are often simply hoping to avoid failure. Individuals high in self-esteem tend to be happier compared to people lower in self-esteem. Self-esteem is negatively correlated with a variety of mental health issues, such as depression and anxiety. Self-esteem is positively correlated with both life satisfaction and personal satisfaction from close relationships. Thus, people high in self-esteem tend to report both more stable dating relationships and more happiness within those relationships.

Despite the many positive factors associated with high self-esteem, there are some negative attributes as well. Self-esteem is positively correlated with narcissism, Machiavellianism, and psychopathy. Strong evidence now suggests that high self-esteem is positively correlated with bullying behavior and interpersonal aggression. To explain these seemingly disparate views of high self-esteem, some researchers distinguish between secure high self-esteem and defensive high self-esteem. From this perspective, individuals with defensive self-esteem are harboring insecurities and self-doubt. Thus, they need the constant reassurance of others to maintain their self-worth. This results in behavioral consequences as well, in that men with high self-esteem are most likely to use violence when someone disputes the favorable view that they have of themselves. Additionally, aggression may result when individuals with defensive high self-esteem experience personal failure (Baumeister & Boden,1998).

Gender and Age

Men tend to have higher self-esteem, compared to women. This gap emerges during adolescence and persists throughout middle age; however, this difference narrows in old age. Additionally, both men and women experience age-related increases in self-esteem from late adolescence to middle adulthood. During childhood, one's parents are generally one's primary source of self-esteem. Thus, parenting style can mold the type of self-esteem that one has later in life. The children of supportive parents tend to have higher self-esteem later in life. Conversely, children that have harshly critical parents are more likely to develop defensive self-esteem, as well as lower self-esteem overall. Beyond parental influence, the academic setting is a significant contributor to the development of the self-esteem for school-aged children. During this time, children are easily able to compare their academic achievement to that of other students. This coincides with identity development, as school-aged children generally have extensive social contact beyond the immediate family. Success, both academically and socially, tends to lead to more positive feelings about the self, thus higher self-esteem. Failure and rejection, however, leads to self-doubt and lower self-esteem. After peaking in middle adulthood, self-esteem tends to decrease as one ages. Generally, this decline is modest and is positively correlated with the normal effects of aging, such as declines in general health and cognitive abilities. Additionally, disengagement for the labor force may produce lower self-esteem as a function of lower income.

Ethnic and Cross-Cultural Considerations

Within the United States, a few minor ethnic differences have been reported. Hispanic individuals tend to have lower self-esteem during adolescence, compared to both White and African American individuals. This disparity disappears during early adulthood, however, with Hispanic individuals reporting slightly higher self-esteem in their 30s. African American individuals experience a more rapid spike in their self-esteem during the adolescent years, leading to higher self-esteem compared to White peers (Twenge & Campbell, 2002). Their age-related declines tend to be more rapid as well, however.

Cross-cultural differences have been noted in the literature, although in many cases dissenting results have also, been found. There appears to be a trend for higher self-esteem in individualistic cultures, compared to collectivist cultures. This may be the result of a Western bias in the scales, however, rather than actual differences in self-esteem (Cai, Brown, Deng, & Oakes, 2007). Self-esteem differences between participants from individualistic cultures and collectivist cultures disappear when using implicit tests of self-esteem. This suggests that individuals from collectivist cultures feel the need to present themselves modestly when taking explicit measures.

Public Policy

During the 1970s interest is self-esteem reached a crescendo in the United States, sparking what could be called a "self-esteem movement." Underlying this interest was the notion that most of an individual's problems in life stemmed from low self-esteem, thus increasing self-esteem was seen as a fix for a number of ills. A variety of agencies began programs to increase self-esteem in the United States. Eventually, this increased interest also resulted in increased research, producing both mixed results and smaller than expected correlations indicating that self-esteem was not the miracle cure sought after. Additionally, high self-esteem correlates with many negative human aspects as well, such as feelings of superiority and higher rates of criminal behavior.

Future Directions in Self-esteem Research

Self-esteem is one of the most researched topics in psychology today. Nonetheless, there are still many remaining questions. Some construct drift may have occurred over the years, as various "types" of self-esteem have become identified. This could explain the disparate findings regarding the correlates of self-esteem. Additionally, factor analysis has suggested that perhaps self-esteem is not a unitary construct, but a conglomerate of other independent constructs. For example, research suggest it may be possible to have both high positive self-esteem and high negative self-esteem. Beyond discovering correlates of self-esteem, the greater challenge is establishing causality. For example, the relationship between low self-esteem and depressions is well documented, yet competing directional models exist, each with empirical support.

See Also

Self-concept, Expressions of the
Self-esteem, Assessment of
Self-esteem, Expressions of

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Self-Monitoring, Theory of

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Conceptualized

Self-monitoring is a personality trait defined as the tendency to subjectively monitor one's self-presentation (see Self-presentation Theory/Impression Management), expressive behavior, and nonverbal behavior in order to affect self-perception and public perception. Some individuals pay a great deal of attention to how they are perceived by others, whereas other individuals are less concerned with the impact that they have on others. Thus, some individuals act in a thoughtful, controlled fashion, consciously adjusting their behavior to social situations and others behave more spontaneously. High self-monitors are individuals that closely monitor themselves in social situations and deliberately act in a fashion subjectively thought to impress others. Conscious thought is given to both their own behavior and the behavior of others in this attempt to be perceived favorably. As their behavior is constantly adjusting to meet social demands, high self-monitors are generally regarded as friendlier and more pleasant by others. Additionally, research has found these individuals to be better at emotion regulation and quicker at determining appropriate behavior in new social situations. Conversely, low self-monitors tend to behave in a manner consistent with their own internal states, such as their beliefs or attitudes, regardless of the social context. As such, they often perceive of themselves as consistent and principled, yet others often consider them to be inflexible, uncompromising, and even overly aggressive. Owing to their lack of awareness regarding social situations, low self-monitors tend to open themselves up to more rejection, on both the personal and professional level. As a result, they often experience elevated levels of anger, resentment, guilt, and isolation.

Considerable differences have been found between high and low self-monitors in regards to the formation of their friendship networks. High self-monitors base their friendships on the skill relevant to the social situation. For example, one might have one set of friends for going to the gym and a different set of friends for going out to a nightclub. Generally, high self-monitors do not allow their various social groups to overlap. The benefit of this compartmentalization is that the high self-monitor is generally surrounded by people that are

highly skilled and comfortable in the selected social setting (Snyder & DeBono, 1985). Whereas high self-monitors tend to have many friends, allowing them to engage in differential self-presentation, low self-monitors usually have fewer friends yet behave more consistently with them. Rather than selected for social skills or abilities, low self-monitors generally select friends on how similar others' attitudes are to their own.

A strong relationship exists between self-monitoring and self-presentation. Individuals high in self-monitoring not only pay greater attention to their social surroundings, but also have more conscious awareness regarding how best to present themselves to others. Conversely, individuals low in self-monitoring interpret fewer social clues and engage in fewer acts of self-presentation. High self-monitors may experience self-presentational conflicts in situations lacking audience segregation. If there is a great deal of variation in the types of people encountered in a social situation, the high self-monitor may struggle with finding the appropriate conduct. This is generally not a concern for low self-monitors (Leone & Corte, 1994).

Measurement of Self-Monitoring

Mark Snyder introduced the concept of self-monitoring in 1974. At the time, there was a theoretical clash between personality perspectives, which look for stable personality traits, and theories espoused by social psychologists, which examine the power of the social situation to drive behavior. The theory of self-monitoring advances a perspective consistent with both viewpoints, in that it suggests there is a stable aspect of an individual's personality that is also responsive to the social situation. Thus, self-monitoring theory suggested that the actions of low self-monitors could be best predicted from trait measures, whereas situational factors would best predict the actions of high self-monitors.

Snyder originally developed a 25-item self-report questionnaire to assess self-monitoring (1974). Degree of self-monitoring was assessed using items such as, "I am not always the person I appear to be." and "I would probably make a good actor." Using this original scale, Snyder found that Stanford University students scored significantly higher than psychiatric patients, but significantly lower than professional actors. This original study reported both high test-retest reliability and validity. This measure, however, was subsequently trimmed to an 18-item measure that has demonstrated better psychometric qualities. Later use of factor analysis (see Factor Analysis in Personality Research) has suggested a multifactorial solution consisting of three subconstructs: Acting, Extraversion, and Other-directedness. This had led to ongoing debate as to whether self-monitoring represents a unified, distinct construct. Currently, there are three measures commonly used to assess self-monitoring: the Self-Monitoring Scale (SMS), the revised version (the Self-Monitoring Scale revised, SMS-R), and the Revised Self-Monitoring Scale (RSMS).

Influence of Self-monitoring

Self-monitoring can be quite useful in certain occupations, such as a salesperson, politician, or actor. Additionally, a significant relationship has been found between high self-monitoring and job performance. This is likely the result of the ability to rapidly adapt to changing

circumstances. High self-monitors strive to provide others with what they want, thus they tend to be seen more favorably by superiors or those in an evaluative capacity. This ability to successfully tap into social norm while providing subtle manipulation is often beneficial during the process of employment interviews, leading to greater success on the job market. Although a great deal of within-sex variation occurs, men tend to score higher on measures of self-monitoring than women. This has been put forth as one potential explanation for sex-based disparities at the higher levels of organizational structures.

Mating behavior is also influenced by one's degree of self-monitoring (Snyder, Berscheid, & Glick, 1988. In one study, participants were faced with the dilemma of either dating an individual that was physically unattractive yet possessing desirable personality characteristics or an individual that was physically attractive yet undesirable in personality. Overwhelmingly, high self-monitors selected the physically attractive partner, whereas low self-monitors chose the partner with desirable personality traits. This suggests that high self-monitors not only place a greater emphasis on external cues compared to low self-monitors, but are also more concerned with creating a positive image for others. Additionally, high self-monitors report more dating partners over a given time period, yet low self-monitors tend to have more stable dating relationships. Finally, recent work has found that an individual's degree of self-monitoring affects the mental representation that one forms of their romantic partners (Leone, Gainey, & Moulder, 2016). Low self-monitors form a more positive representation of their current partner and a more negative representation of their former partners in comparison to high self-monitors.

Self-Monitoring and Personality

High self-monitors tend to have higher self-esteem (see Self-esteem, Theory of) compared to low self-monitors. This could be the result of higher levels of social praise given to high self-monitors (Leary et al., 1995). In fact, the criteria for individual self-esteem seems driven by one's degree of self-monitoring. For low self-monitors, depression occurs when there is a sizable discrepancy between the perceived self and what he or she thinks the self should be. For high self-monitors, depression occurs when there is a sizable discrepancy between the perceived self and what he or she thinks is expected by others.

Individual differences in self-monitoring are even reflected in the word-choices that individuals employ (Ickes, Reidhead, & Patterson, 1986). High self-monitors use third-person pronouns (they, them) more frequently when they speak, compared to low self-monitors who tend to use first-person pronouns (I, me) more frequently. This is indicative that high self-monitors place more attentional focus on others rather than the self. Additionally, high self-monitors appear to be more susceptible to groupthink and herd mentality.

Developmental and Biological Factors

School-age children already exhibit a propensity for self-monitoring, although their skills at self-presentation are often primitive. Some empirical work has supported the notion that self-monitoring is not entirely stable throughout the lifespan. Rather, it may peak during

late adolescence and slowly reduce as the individual ages. Clinical research involving patients with lesions suggests that the prefrontal cortex is intricately involved in self-monitoring. Not only is the prefrontal cortex essential for execution of behavior and self-insight, but damage to the prefrontal cortex results in a lack of ability to discern appropriate behavior in social contexts. Even relatively minor disruptions of executive function may hinder self-monitoring, as both variations in circadian rhythm and sleep deprivation are noted to reduce self-monitoring abilities.

Intervention

Self-monitoring is a useful therapeutic technique for a wide variety of academic and behavioral difficulties. These techniques are particularly effective for adolescents and young adults. They have demonstrated efficacy for a range of issues such as self-help (for example, weight loss and better oral hygiene), academic issues (for example, classroom behavior and homework completion), and development of individual social skills. Often individuals, particularly adolescents, are unware of how their behavior affects those around them. Self-monitoring interventions increase understanding of these effects and, in the process, teach individuals increased awareness of their own behaviors. Thus, individuals undergoing self-monitoring interventions often become more altruistic and socially conscious. Another benefit of utilizing self-monitoring techniques is that they can be designed for the individual's specific needs and social setting. As a consequence of increased social sensitivity, there is often a reduction in other undesirable behaviors that were not specifically targeted by the intervention.

Cross-cultural Considerations of Self-Monitoring

Cross-cultural differences have been noted in regard to self-monitoring. As people from individualistic nations place more emphasis on the self, there is there is the expectation that they will engage in less self-monitoring that individuals from collectivist nations. Despite empirical support for this notion, it should also be noted that Snyder's measures of self-monitoring focuses on aspects of the self that predominate American and Australian culture. Thus, later researchers suggest that the scale does not adequately assess self-monitoring in cultures such as Japan and Hong Kong. Additionally, cross-cultural differences regarding self-monitoring may influence relationship satisfaction. Among Western respondents, self-monitoring correlates negatively with relationship quality, however among Eastern samples no significant relationship was found to exist.

Future Directions

Paramount to the future study of self-monitoring is determining whether it exists as a unitary construct, or is merely the summation of the three subconstructs revealed through the original factor analysis. Additionally, there appears to be a great deal of theoretical overlap with social comparison. Recent work has found that the strength of this relationship varies

greatly, depending on which measure of self-monitoring is employed (Soibel, Fong, Mullin, Jenkins, & Mar, 2012). Beyond the question of the relationship between self-monitoring and social comparison, these findings further illustrate the need to clarify precisely what self-monitoring is since there are currently multiple scales for assessing self-monitoring and each produces disparate results. Additionally, there is disagreement about whether high and low self-monitors represent discrete types of individuals or whether these are simply points along a continuum.

See Also

Self-monitoring Behavioral Assessment Techniques
Social Skills in the Workplace
Terror Management Theory

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Self-other Interjudge Agreement; Theory of Accuracy

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Self-other accuracy refers to the consistency in personality evaluations between judges of target individuals and the targets themselves (Funder & West, 1993). In 1955, Lee Cronbach (see Lee J. Cronbach) described four basic types of accuracy. Stereotype accuracy refers to a judge's ability to generalize about a target's outcomes by focusing on the probability of a response. Differential accuracy pertains to a judge's ability to draw distinctions between targets on specific personality dimensions. The remaining two types, evaluation and differential evaluation, represent the central tendency of a judge to make self-judgments as well as the ability to discern differentiation from average evaluations. Cronbach suggested that these components influence assumed similarity between the judge and target because the smaller the discrepancy in each of these four components, the more a target is perceived as comparable to the judge. Indeed, Kahneman and Tversky (1973) found that perceived similarity between judge and target influenced the level of liking between the two and increased judges' confidence in the accuracy of their assessments of a target. Assumed similarity is, therefore, an important component to assessing accuracy.

Many current researchers investigating self-other accuracy argue that Cronbach's ideas may have been misunderstood and misapplied in decades of research due in part to the statistical implications of assessing each component. Furthermore, how to properly measure accuracy has been debated extensively. As a result, researchers have developed several other theoretical models concerning self-other accuracy and how it is obtained.

Social Relations Model

Dave Kenny's (1988) Social Relations Model (SRM) focuses on the judgments by others breaking it down into three components: how the perceiver tends to judge others, how the target typically is judged by others, and how the relationship between the perceiver and target influences the perceiver's evaluation. Kenny argued that to appropriately

evaluate person perception in each of these areas, seven basic components should be considered: consensus (multiple judges agree on their evaluations of a target), assimilation (a judge rates multiple targets similarly), self-other agreement (a judge perceives a target as the target perceives him or herself), assumed similarity (judges view targets as judges view themselves), reciprocity (judges and targets view each other similarly), assumed reciprocity (judges believe targets evaluate them as the judges view the targets), and meta-accuracy (judges are aware of how targets view them). Kenny stressed that consensus should be the most important area of focus in future research because it would help to determine accuracy among judges, but he also emphasized the importance of understanding how the level of acquaintance between two individuals would influence agreement.

Realistic Accuracy Model

In his Realistic Accuracy Model (RAM; see Realistic Accuracy Model), David Funder (see David Funder) argues that self-other accuracy is a complex process based on attribution, observable behaviors, and the perceptions of the judge. According to this model, the observability of a trait cue, the detection of that cue, and use of the cue in a given interaction will dictate the extent to which individuals accurately judge a target. In other words, accuracy combines judges' and targets' abilities to exhibit and identify clues during an interaction. Therefore, greater accuracy can result in one of four ways: (1) better information is given during the course of an interaction, (2) traits are more overt, (3) a target is easier to judge, and/or (4) a judge is simply better than others (Funder, 1995). Building upon these four components, Funder proposed that they occur in a specific sequence in that a target's trait is elicited by the context and produces a specific behavior, and then that behavior must be available for detection, evaluated, and correctly understood by a judge. Each of these steps elicits a unique set of problems because if the behavior is not overt enough or the judge is not paying attention, then the probability of making accurate judgments decreases.

Funder and West (1993) argue that the combination of these factors is important because integrating all this information facilitates accurate predictions of future behaviors within a given context and aids in the development of intimate relationships. The more successful people are at the four stages of the RAM, the more likely that a particular personality trait is to be used to correctly assess behavior. The assumption of judges then is that behaviors produce information about the underlying personality and, therefore, help in understanding what an individual will do in the future. The ability to predict behaviors is important for the development of relationships because greater self-other agreement between individuals produces greater liking of others, and as a result, more favorable relationships develop (Human, Sandstrom, Biesanz, & Dunn, 2012).

Self-Other Knowledge Asymmetry Model (SOKA)

The SOKA model deviates from the previous two models in that it does not simply focus on judges' accuracy about targets but instead makes predictions based on differences in knowledge and motivation in the assessment of the self vs. others. Vazire (2010) proposed and found that self-ratings are more accurate than other-ratings for traits that are low in

observability and evaluativeness, but others are more accurate than selves for traits that are high in evaluativeness because ego-protective and social desirability concerns bias self-ratings. Self- and other-ratings did not differ significantly in accuracy for traits that are high in observability and low in evaluativeness. Vazire also found that level of acquaintance moderated these effects with friends being more accurate than strangers for traits that were low in observability and either high or low in evaluativeness.

Further exploring the SOKA model, Beer and Vazire (2017) examined how valid self-other judgments are regarding the Big Five personality traits. They used reports from targets, a knowledgeable judge, and an acquaintance judge as well as electronically activated recorders to assess environmental noises to determine accurate evaluations. Judges relied more on behavioral cues to assess behavior, where extraversion, neuroticism, and openness were assessed most accurately from behaviors. Self-reports of behaviors predicted only extraversion.

Current and Future Research

Given that each theoretical perspective proposes different goals in person perception, three main research questions began to dominate the field: When do multiple judges of a target agree with each other (i.e. consensus)? When do a judge and target agree about evaluations of the target (i.e. self-other agreement), and when are the judgments reflective of actual characteristics (i.e. accuracy)? Although the aforementioned paradigms have continued to narrow down how and when these questions can be answered, there is still debate concerning how and if moderators exert influence on self-other accuracy and the extent that intimacy influences accuracy and consensus.

Moderators of self-other accuracy may be hard to identify because of the complexities of the judgment process. Greater psychological adjustment (defined as a combination of hedonic and eudemonic well-being) was associated with greater accuracy in self-other judgments perhaps because it aids in conveying less observable traits to others (Human & Biesanz, 2011). Women have a slight accuracy advantage over men in cross-sex relationships (Allik, de Vries, & Realo, 2016), but age effects have been inconsistent (i.e. yielding greater agreement or having no effect).

Interestingly, the length of acquaintance may be a more complex variable than once thought because the association between length of relationship and accuracy is not linear (Brown & Bernieri, 2017). At zero acquaintance, extraversion, conscientiousness, openness, and agreeableness were judged accurately. As expected, accuracy in trait judgments increased for all Big Five personality dimensions after a brief get-to-know-you interaction, but significant increases in accuracy were not detected after interactions during three classroom sessions for a 10-week academic course. Therefore, more research is needed to address the nature of the relationship between accuracy and intimacy. Additionally, research should extend further into how individual characteristics influence the ability to convey and judge traits accurately.

Finally, researchers are returning to early interests in cognitive processes and examining neurocognitive mechanisms associated with self-other agreement. For example, Zhao and colleagues' (2016) found that oxytocin plays a role in the way that self-relevant information is used when making accuracy judgments because it reduces self-centered behaviors.

See Also

David Funder
Lee J. Cronbach
Realistic Accuracy Model

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Self-Presentation Theory/Impression Management

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Impression management (IM) is the act of controlling the impressions one conveys to an audience (Schlenker, 1980). It is not limited to acts involving deception, and instead includes any act, conscious or nonconscious, intended to convey a particular impression – about the self or others – to a particular audience. For example, people often manage others' impressions to help these others accomplish their impression management goals (Schlenker & Britt, 1999). In addition, an audience may not actually contain other people; it may be an imagined audience, or it may be the "self" as an audience (Schlenker, 1980). When attempting to manage only one impression to one audience, people are often successful, and even young children can effectively convey a single desired impression (Hatch, 1987).

In 1959, Erving Goffman published the influential book, "Presentation of self in everyday life" followed by "Strategic interaction" in 1969 (Goffman, 1959, 1969). In these and other writings of his, he lays the foundation for several concepts including impression management, roles, and the dramaturgical perspective. In doing so, he suggests that life is like a play and we are all actors. We play roles based on what is expected of us and what we want to accomplish in any given interaction. As in theater, he suggests that we also use scripts, props, and do our best to set the stage to make for the most successful performance possible.

Stemming from this broader concept of impression management, self-presentation focuses on the ways people attempt to present themselves to others (Leary, 1995). When people are aware of the desired image they seek to convey to a particular audience, they can systematically use various self-presentational tools to choose what to say and how to act to convey the desired image. The more extreme the impression, the easier it should be to convey. For example, when politicians want to convince people from their party that they are likeminded, they can simply act and talk in ways that correspond to the views of that party.

Multiple Audience Problem

People may also face more complicated self-presentational situations. For example, the multiple audience problem occurs when a person faces two or more audiences and desires to convey a different impression to each audience. An "audience", in this case, can be any number of

people to whom the person wants to convey a specific impression. One example is when a teenage boy goes to dinner with his mother and his girlfriend and likely wants to convey different impressions to these two audiences (e.g., responsible to his mother and carefree to his girlfriend). Expanding on the example from above, politicians in a two-party system often want to convey one impression (e.g., a conservative) to all members of their party and another impression (e.g., a moderate) to all voting members of the other party. Therefore, the "problem" involves the possibility of conveying the wrong impression to the wrong audience, and may result in negative consequences (e.g., lost trust). To be successful in the multiple audience problem, people must convey or maintain all desired impressions to all intended audiences.

After years of research on people's ability to simultaneously convey multiple messages, Fleming (1994) theorized about the desire to present multiple impressions of the self, arguing that people are often successful in these multiple audience problems. In one of the first examinations of this phenomenon, Van Boven, Kruger, Savitsky, and Gilovich (2000) measured participants' success and confidence in these situations and, for the first time, empirically examined multiple impressions. These researchers asked "actor" participants to present one impression (i.e., an extremely studious individual) while alone with one person and then the opposite impression (i.e., a reckless party animal) while alone with a second person. Each actor then interacted with both audiences together and received instructions to preserve both impressions. In general, people successfully maintained each desired impression (as measured by audiences' impressions of the actor). In addition, participants were overconfident in their ability to convey the two different impressions simultaneously. That is, actors expected to convey stronger impressions than they actually did.

Most recently, Nichols and Cottrell (2015) examined factors affecting self-presentational success in the multiple audience problem. Participants arrived in groups of three, and experimenters assigned one participant to play the actor while the other two participants served as audiences. In each interaction, experimenters gave specific instructions to the actor regarding which impression(s) to convey. In one condition (i.e., the familiar audiences condition), actors conveyed an impression individually to each audience and then attempted to preserve the different impressions in front of both audiences. In a second condition (i.e., the unfamiliar audiences condition), actors conveyed different impressions to two audiences simultaneously without first establishing the impressions with those audiences in prior interactions. Participants also either conveyed extreme positions or more similar, moderate positions. In general, audience familiarity and the discrepancy of the impressions affected self-presentational success in the multiple audience problem (i.e., the ability to convey both impressions simultaneously). People were more successful in the multiple audience problem when they faced familiar audiences than unfamiliar audiences and when they conveyed similar rather than discrepant impressions.

Strategies and Tactics

Although an agreed upon comprehensive list has not yet emerged, several scholars have focused on the tactics, or strategies, used to convey a specific impression. One of the most widely used and first list of tactics emerged from the work of Jones and Pittman (1982). Their taxonomy of impression management techniques included exemplification,

ingratiation, intimidation, self-promotion, and supplication. Exemplification is when individuals attempt to appear moral and having integrity by acting honest, self-sacrificing, and generous. Ingratiation involves things such as doing favors, flattery, or agreeing with someone else to appear likable. Intimidation is seen in anger and aggression toward others in an attempt to appear dangerous. Self-promotion refers to behaviors aimed at trying to make oneself appear competent, as in an interview-type situation. Last, supplication occurs when individuals present the impression of vulnerability through acts of weaknesses. Additional tactics discussed in the literature include excuses, apologies, justifications, disclaimers, self-handicapping, entitlement, sandbagging, enhancement, and blasting (Gibson & Sachau, 2000; Lee et al., 1999).

Detecting IM in Self-Report Responses

One common problem involved in using self-report surveys or questionnaires (for research or practical purposes) is that people may respond in a purposeful manner to convey a desired impression. Much research has focused on detecting these respondents, and two main scales are often used to do so. The first measure is the Social Desirability Scale (Crowne & Marlowe, 1960) while the second is the Balanced Inventory of Desirable Responding (Paulhus, 1991). Both scales seek to detect participants who disproportionately deny common negative thoughts or behaviors or assert uncommon positive ones. In general, these scales are successful at detecting "faking" on self-report measures, and are useful for academics and practitioners alike (Paulhus, Bruce, & Trapnell, 1995).

Future Research

Despite the plethora of research focused on these issues in the 1980s and 1990s, research on impression management has been largely ignored for the past two decades. As such, there still exist several opportunities for IM research to benefit various academic and practical fields. This includes further examining how impression management looks and works in organizational contexts, including with leadership, customer service, and hospitality, just to name a few. In addition, a better understanding of impression management in marketing and advertising will likely benefit those doing research and using these concepts in practice. Finally, gaining an overall better understanding of why and how we change our behaviors to manage impressions can be useful to researchers and practitioners in a variety of settings.

See Also

Person-Situation Interactions
Self-Concept, Expressions of the
Self-Monitoring, Theory of
Self-Regulation
Social Anxiety and Social Anxiety Disorder
Social Desirability

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Social Learning Theory/Social Cognitive Theory

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Conceptualization and Overview

Social learning theory was developed from the works of Albert Bandura in a period where behaviorism was one of the dominant theoretical lenses through which human behavior was explained. In contrast to the strict stimulus-response association that most behaviorist theories adhered to, social learning theory acknowledged the role of *cognitions* – such as our thoughts – in the process of learning. This varies greatly from the sole emphasis on behavior based on stimuli and automatic responses that other models of learning posited, as well as the strict rules of enforcement schedules that were deemed necessary for behavior to occur. Indeed, Bandura essentially merged behavioral and cognitive theories to provide a model of learning that incorporated behavioral, cognitive, and environmental elements. This emphasis on cognition was more apparent when Bandura further developed and renamed his original social learning theory as social cognitive theory. The emphasis on cognitive processes does not detract, however, from the role of the observing individual as well as environmental factors. Rather, social learning theory incorporates all three components as explanatory mechanisms that drive the acquisition of behavior.

Social learning theory was realized following a series of seminal experiments by Bandura and his colleagues involving Bobo dolls. In their first experiment, Bandura and his colleagues exposed children to an adult of either the same or opposite sex, either playing aggressively or non-aggressively with a Bobo doll. The children were then allowed to play with the Bobo dolls themselves, and it was identified that the children were more likely to play aggressively with the dolls if the adult they had watched had also played aggressively with the doll. These results were also replicated in a later study, where children viewed either violent or non-violent videos, and were then allowed to play with the Bobo doll. Children who viewed the violent videos were similarly more likely to play aggressively with the doll. These results thereby highlighted the role observation – of either interpersonal behavior, or through media images – plays in the modeling of behavior. In addition, these

results suggest that (1) behavior can be learned solely through observation, and (2) the acquisition of this behavior does not require any additional reward or reinforcement.

Based on his findings, Bandura also highlighted the cognitive processes – or principles – involved in the observation of behavior, which ultimately influence whether modeling of that behavior will occur. According to Bandura, there are four stages – or components – that are required for successful learning. First, individuals must *attend* to the behavior being modeled. Various characteristics – such as the novelty of the behavior, or its relevance – influence the likelihood that the observer will pay attention to it. Furthermore, it is quite likely that a behavior that is not attended to will not be imitated. Characteristics of the individual modeling the behavior – such as how closely the observer identifies with them – also influence whether the behavior will be attended to or not. For example, a female observer would be more likely to model behavior that is demonstrated by another female. Second, the *retention* of the behavior will influence how well it will be replicated. In other words, the degree to which the observer can remember the specifics of the behavior influences how well it is modeled. Both features of the observer – such as their own cognitive capacity – as well as those of the behavior – such as how complex the act is – will influence the degree to which the behavior is modeled. The behavior that was modeled is then *reproduced* by the observer; feedback from others can help the individual adjust the behavior at this stage. Reproduction of the behavior not only depends on the cognitive capabilities of the individual, but also the physical or sensorimotor skills required to implement the behavior. Finally, differing *motivations* will influence whether the behavior is reproduced or not. By evaluating whether production of the behavior results in rewards or not – and whether these rewards outweigh any costs – the individual's motivation to replicate the behavior will be affected. These motivations often involve the environmentally enforced rewards or costs associated with the behavior.

Reciprocal Determinism

The central tenet of SLT surrounds the dynamic interaction between the individual's personal influences, such as their cognitions, their behavior, and the environmental; an interaction also referred to as "triadic reciprocability" (Bandura, 1986). In other words, these three factors occur interdependently alongside one another, with mutual effects that influence the cognitions one experiences, the behavior that is produced, or the environment that is sought. As indicated by Bandura (1978, pp. 356–357), "Because people's conceptions, their behavior, and their environments are reciprocal determinants of each other. Individuals are neither powerless objects controlled by environmental forces nor entirely free agents who can do whatever they choose." Here, Bandura is suggesting that the interplay between these three factors is nuanced and fluid; one's cognitions might influence the way an individual behaves across different environments, or an individual's behavior might elicit varying responses from the surrounding environment. For example, a child that is disruptive in class might elicit negative feedback from his or her teacher and classmates, which in turn results in the child becoming cognitively aware of the negative reaction from the environment and, ultimately, influences future behavior.

This concept contrasts with the learning and personality theories that were predominant during the period of Bandura's research; specifically, these theories generally

conceptualized the forces that influenced behavior as having independent effects and being non-interactive. For example, Skinner's theory of learning posited a direct stimulus-response method of behavior acquisition, with no attention given to the role of cognitions in this process. In other words, behavior was proposed to be solely shaped by environmental stimuli, with the responsive behavior occurring automatically without any cognitive input. Similar to SLT, Skinner also posited that the likelihood of a particular behavior being learned depended on the reinforcement – either positive or negative – associated with it.

Self-efficacy

The notion of self-efficacy refers to "people's judgments of their capabilities to organize and execute courses of action required to attain designated types of performances" (Bandura, 1986, p. 391). In other words, self-efficacy refers to the belief an individual has in their capability to complete a certain task. As a result, self-efficacy levels greatly influence the *motivation* – and ultimate achievement – of a certain behavior. If one does not believe that they are capable of performing a task, they will consequently have little motivation to perform it as well. As posited by Bandura (1997), "people's level of motivation, affective states, and actions are based more on what they believe than on what is objectively true" (p. 2); therefore, self-efficacy beliefs are a critical component in driving the completion of a task, even when considering an individual's existing skill levels. Furthermore, self-efficacy has been posited to be composed of three different dimensions (Bandura, 1977a, 1977b): self-efficacy *magnitude* refers to the level of difficulty of the task itself. For example, an individual might feel capable of performing a low magnitude tasks – such as sending an email – but have lower self-efficacy in completing a high magnitude task – such as completing a manuscript. The second dimension is the *strength* of self-efficacy, or the level of confidence the individual has about performing the task. Finally, *generality* refers to the extent in which a self-efficacy belief is generalizable to other situations or domains (Cecil & Pinkerton, 2000; Van der Bijl & Shortridge-Baggett, 2001).

Sources of Self-efficacy

According to Bandura (1977b, 1982) several factors are known to influence one's level of self-efficacy; specifically, four factors have been posited to be used by individuals to determine their self-efficacy for a specific task. First, *performance outcomes* – or the previous experience one has with the task – is proposed by Bandura (1977b) to be the most important source of self-efficacy. Experiences in which an individual has previously achieved success will likely lead to a greater sense of competence for that particular task, as well as related ones. Second, *modeling* – or *vicarious experience* – also influences one's level of self-efficacy; seeing other individuals – especially others who one can relate to – succeed at a given task increases one's own levels of self-efficacy. Alternatively, one's self-efficacy decreases when we see other individuals fail at performing a given task. The third factor, *verbal* or *social persuasion*, refers to the positive or negative reinforcement one receives from other individuals. Encouragement from others regarding one's performance on or ability to perform a given task often leads to increases in self-efficacy, whereas

discouragement can result in decreases. Encouragement can also result in greater sustained self-efficacy when the individual is faced with challenges in completing the task. Finally, *physiological feedback* – or *emotional arousal* – refers to the physiological sensations individuals experience and the influence they can have on one's levels of self-efficacy. For example, physiological sensations such as anxiety and sweatiness can result in decreased perceptions of self-efficacy for a task.

Vicarious Reinforcement

In addition to simply learning through observation, Bandura also suggested that observers are influenced by the reinforcements provided to the modeler of the behavior. Specifically, these reinforcements can take the form of punishment or rewards as consequences for the behavior, with the observer inferring similar reinforcement if they were to engage in the behavior as well. Furthermore, it is posited that behaviors that are rewarded are more likely to persist, whereas those that are punished will be discontinued. Bandura explored the concept of vicarious reinforcement through another Bobo doll experiment. In this version, Bandura (1963) again presented videos of a model playing aggressively with a Bobo doll. In one of the experimental conditions, the video showed the model being rewarded for their behavior; in the second experimental condition, the model was punished with an admonishment. Finally, in the control condition, the video ended immediately after the model finished aggressively acting with the Bobo doll. The children were then allowed entry into a room with toys, including the Bobo doll. The results of the study found that the children who had viewed the model being punished for the aggressive behavior were less likely to play aggressively with the Bobo doll than those who had viewed the video of the model being rewarded. These results indicate that observed behavior that is rewarded is more likely to be imitated, whereas behavior that is punished – also referred to as vicarious punishment – is less likely to be modeled. The concept of vicarious reinforcement can be applied to various real-life settings, and most notably has been used in educational environments (e.g. Kazdin, 1973, 1981).

See Also

Albert Bandura
Clinical Applications of Cognitive-Behavioral Theory of Personality
Self-efficacy

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Terror Management Theory

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Terror Management Theory

Terror Management Theory (TMT; Greenberg, Pyszczynski, & Solomon, 1986; Solomon Greenberg, & Pyszczynski, 2015) draws upon thinkers such as Sigmund Freud, Otto Rank, Robert Jay Lifton, and Ernest Becker, to provide a comprehensive analysis of how the knowledge of mortality and fear of death influences human behavior.

TMT proposes that humans, like other animals, are predisposed to strive for survival and to avoid death. However, unlike other animals, humans are aware of their inevitable mortality. This awareness, coupled with a drive for self-preservation, creates the potential for paralyzing anxiety, or terror. According to the theory, human beings avoid feeling this terror by sustaining faith in *cultural worldviews*. Cultural worldviews are belief systems that provide a basis of meaning and significance that allow humans to feel like they may transcend death, either literally (through afterlife beliefs), or symbolically (by leaving a lasting impact on the world though group identification, relationships, children, or other life achievements). When people live up to the standards of cultural worldviews, they can attain a sense of self-esteem – the feeling that one is a valuable member of a meaningful universe. According to TMT self-esteem protects people from feeling death anxiety.

To understand how the need for self-esteem develops, it is important to consider socialization processes (Becker, 1973). Humans are born helpless and dependent on their parents for protection, warmth, and love, to help sooth their anxiety and fears. Over their first few years, children learn that in order to retain love and approval from their parents they need to adjust their behavior to meet their parents' expectations. This desire to live up to the standards outlined by our parents is the initial impetus for a need for self-esteem. When children live up to the standards, they feel worthy of love and protection. In this way, self-esteem becomes an anxiety-buffer, a primary basis of psychological security. As children develop the capacity for symbolic thinking, and learn about death, they come to realize that

their parents are also fragile and mortal, and that they cannot protect them from death. At this point, the bases of self-esteem transfers from living up to standards set by parents to standards set by larger cultural structures (e.g. one's nation or religion). Individuals vary on how successful they are at meeting the expectations set forth by their worldviews. Those who are more successful tend to have higher and more stable self-esteem, while those who are less successful tend to have lower and less stable self-esteem.

Support for Terror Management Theory

Support for TMT has been found in over 500 studies across over 25 countries. Three major hypotheses have guided most TMT research. The first is the *mortality-salience* hypothesis, which states that if a psychological structure (e.g. self-esteem, cultural worldviews) protects people from anxiety about death, then reminders of death should increase their need to defend and bolster that structure. This hypothesis has received wide empirical support (for a review see Greenberg, Vail, & Pyszczynski, 2014). For example, studies have shown that after thinking about death participants are more likely to defend their cultural worldviews (e.g. Greenberg et al., 1990) or strive to enhance their sense of self-esteem by living up to the standards of their worldviews. In general, after reminders of death, participants will defend their worldviews by praising those who support them and derogate or aggress against those who threaten or challenge them (e.g. Greenberg et al., 1990). This "worldview defense" has important implications for intergroup relations. However, individual differences affect the nature of these defenses in that they depend on the individual's internalized worldview. For example, after reminders of death, political conservatives become more supportive of conservative candidates, whereas political liberals become more supportive of liberal candidates. Likewise, mortality salience leads religious individuals but not atheists to endorse more strongly religious beliefs.

TMT proposes that the mortality-salience effect occurs through a dual process in which death-related thoughts are first pushed out of consciousness by *proximal* defenses, such as denial, distraction, or rationalization. After death thoughts are suppressed, they are still accessible, but no longer conscious, and people engage in *distal* defenses. Distal defenses include maintaining self-esteem and faith in one's cultural worldview, which ultimately give people a feeling of protection and hope for immortality (e.g. Pyszczynski, Greenberg, & Solomon, 1999).

Although a typical mortality-salience induction asks participants to consciously think about and write about their own death, mortality salience has been induced in a variety of ways including subliminal priming of death-related words, exposure to death-related images, terrorism, natural disasters, and proximity to cemeteries. Importantly, the effects of mortality salience appear to be unique to death-related cognitions, rather than other aversive topics (e.g. intense pain, meaninglessness, failure, general anxiety, uncertainty, and social exclusion).

A second hypothesis, the *anxiety-buffer* hypothesis, states that if a psychological structure (e.g. self-esteem, cultural worldviews) buffers anxiety, then validating or boosting this structure should reduce anxiety in response to subsequent threat. If self-esteem provides a buffer against death-related concerns, then those with high levels of self-esteem should be

less susceptible to reminders of death. In support of this hypothesis, researchers have found that those with high dispositional self-esteem, or temporarily elevated self-esteem, report less anxiety in response to graphic death images and while anticipating electric shocks (Greenberg et al., 1992), and engage in less defensive responses after a reminder of their mortality (e.g. Harmon-Jones et al., 1997).

A third basic TMT hypothesis is the *death-thought accessibility* hypothesis. According to this hypothesis, if a psychological structure (e.g. self-esteem, cultural worldviews) provides protection against death-related concerns, then threatening the structure should increase the accessibility of death-related thoughts. In support for this hypothesis, studies show that threatening one's self-esteem or their cultural worldviews increases the accessibility of death-related thoughts in consciousness (Hayes, Schimel, Faucher, & Williams, 2008; Schimel, Hayes, Williams, & Jahrig, 2007). Death-thought accessibility is commonly assessed using a task in which participants fill out a series of word fragments (e.g. DE _ _) that can be completed with neutral words (e.g. DEBT) or with death words (i.e. DEAD). The more word-stems completed in death-related ways, the closer death-related thoughts are to consciousness.

TMT and Individual Differences

Aside from self-esteem, a variety of other personality variables also have been found to influence how people manage their mortality concerns (see Greenberg et al., 2014). Four personality variables have been extensively studied: authoritarianism, personal need for structure, attachment style, and neuroticism.

Authoritarianism refers to a proneness toward rigid obedience to authority. After reminders of death, those high in authoritarianism become particularly negative toward members of different groups, whereas those low in authoritarianism become particularly tolerant of them.

Personal need for structure refers to preferences for structure and order in one's life. Research has found that mortality salience makes those high in need for structure prone to overly simplified views of themselves, others, groups, and events. In contrast, mortality salience makes those low in need for structure more open to experiences, complexities, and novel cultures.

Attachment style is how one relates to other people. Securely attached people are low in relationship-related anxiety and avoidant tendencies. Insecurely attached people are high in anxiety, avoidance, or both. These attachment styles originally developed during childhood. They moderate responses to mortality (e.g. Mikulincer, Florian, & Hirschberger, 2003). Research has found that reminders of mortality increase reported relationship commitment, thinking about romantic commitment reduces defensive responses to such reminders, and priming relational insecurity increases death-thought accessibility. Studies have also found that after mortality salience, people exaggerate perceptions of how positively their partners view them, are more likely to forgive a partner's hurtful offense, and experience greater distress when imagining partner infidelity. However, the degree to which reminders of death make close relationships more appealing is often moderated by attachment style. Whereas securely attached individuals are more likely to invest in close

relationships as a terror management strategy, persons with insecure attachment styles are more likely to invest in other, more culture related resources for terror management (e.g. Mikulincer et al., 2003). More often than not, secure individuals are able to manage the terror of death in a more efficient way, and experience less anxiety and depression.

Neuroticism refers to a proneness to emotional instability and negative emotions such as guilt, anxiety, and depression. From a TMT perspective, highly neurotic people are not well integrated into meaningful symbolic systems of reality, and consequently for them the body is a continual reminder of their material nature and therefore the inevitability of physical death. For those high in neuroticism, mortality salience therefore decreases the appeal and appraisal of the physical aspects of sex and bodily functions. Furthermore, reminders of sex and the body serve to increase death-thought accessibility. For those low in neuroticism, body reminders are only threatening if participants also read about how humans and animals are not very different (Goldenberg, 2012).

See Also

Coping
Self-esteem, Expressions of
Self-esteem, Theory of
Unconscious Processes, Expression of Personality Process

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Trait Theory of Allport

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Developing a Common Language

The core concept of personality is dependent upon a certain consistency of behavior in an individual, and for current behavior to frequently be in some meaningful way related to their past behaviors. For disparate behaviors to demonstrate a similarity across time, the motivational structure of the individual must be at least somewhat rigid and constant, and this internal framework is contemporarily discussed as a collection of *personality traits*. Decades before the creation of the Big Five (see FFM and Facets), Gordon Allport examined the commonality between and across human behaviors and developed a theory of personality traits and the extent to which they shape an individual's behavior. It is difficult to completely imagine the field of personality psychology without the common trait names used contemporarily, however the field owes a great debt to the lexical investigations of Gordon Allport. Along with his colleague Henry Odbert, Gordon Allport carefully classified all personality-describing words found in the major dictionaries of his time, forming a list of more than 40,000 words. From this list, the researchers selected the adjectives and found more than 4,000 words which fulfilled these criteria (Allport & Odbert, 1936). This work forms a major basis for the trait names employed today across the field, and the theories which arose from this investigation helped to lay the groundwork for countless personality researchers in the following years.

Varying Roles and Strengths

Gordon Allport's view of traits included various levels of traits with vastly different impacts on external behavior, namely Cardinal Traits, Central Traits, and Secondary Traits. These traits exist in a hierarchy, with Cardinal Traits dominating Central Traits, which in turn are more strongly asserted than Secondary Traits. A Cardinal Trait is a major motivator of behavior, and shapes the desired trajectory of an individual's life. These traits are more

rarely evidenced than those that are Central or Secondary, but when present are unmistakable. A businessman who is driven by a need to dominate his field and aggressively pursues hostile takeovers or an actress who absolutely needs to be loved by millions are examples of individuals shaped by a Cardinal Trait. These traits influence nearly every aspect of the individual's personality and behavior, and are clearly seen by others. The motivational power these traits possess is fearsome and unidirectional, capable of inspiring near compulsive behavior and rendering the description of an individual into such succinct and complete phrases as "a greedy man." Central Traits are present in every individual and are much more complex than Cardinal Traits, as they operate in concert with other Central Traits and Secondary Traits in shaping behavior. The relative strength of a Central Trait is influenced by the current environment to some degree, but are never totally repressed and rarely dominate other traits completely. Agreeableness, honesty, and trustworthiness are example of Central Traits. A person who is honest is also many other things, to describe their personality using only the word honest would be an incomplete description of the individual. Central Traits are expressed across situations and time. An individual with a strong honest trait will not typically "turn off" their honesty, just as a very disagreeable individual will frequently be just as grouchy tomorrow as they were today. Secondary Traits, according to Gordon Allport, are traits that arise under certain circumstances and are more in a state of flux and may deviate from the individual's traits which lie higher in the hierarchy. Likes and dislikes are a form of Secondary Traits, and are more difficult to predict than Central Traits due to their specificity. Secondary Traits also account for many behaviors that appear to be a deviation from an individual's Central Traits, as a specific circumstance may prompt the expression of a Secondary Trait in direct response. For example, a very organized person may bring absolute ruin to their office when attempting to track and kill a spider which crawled across their desk. Their consistent neatness which is an expression of a Central Trait is disrupted by the expression of their Secondary Trait, a primal loathing of spiders (Allport & Odbert 1936).

Trait Expression

Gordon Allport's hierarchy of traits makes up the internal personality structure of an individual, and the expression of these traits through behaviors is dependent upon the environment in which the individual occupies. To rectify this dual nature of traits, Allport borrowed a concept from biology and referred to the internal structure as an individual's *Genotype* and the external forces which shaped trait expression as their *phenotype*. This constant interplay of internal and external forces allows for behaviors which at first seem to imperil the claim of consistent and constant traits, such as in the earlier spider example. Allport believed that traits could be used to explain motivations for behaviors in a general sense, to find the commonality between disparate motivators for behavior. Allport also believed that a behavior that deviated from what was expected was also a result of trait expression, but in response to an external stimulus (Allport, 1931). Cardinal and Central Traits shape behavior in broad sweeping motions, the minutiae of everyday living cannot be ascribed wholly to the rigid traits which shape lifetimes but to the stimulus-response interactions governed by Secondary Traits. Furthermore, traits themselves are not rigidly ascribed an

immutable rank across individuals, but may exist at differing levels in different individuals. As an individual's phenotype is dependent upon the trait-environment interaction, an individual may possess traits that are contradictory and their expression determined by the situational circumstance (Allport, 1931). This allows for the complexity of an individual to be examined as the result of many competing forces, both internal and external.

Synonymous but Functionally Different

Allport strived to develop lists which included all manifestations of such underlying constructs, and felt that the expression of any one of these traits was sufficiently different from the others. Because of this sentiment, later work by others such as Raymond Cattell (see Cattell Trait Theory Lexical Analysis) drastically reduced the trait word lists by removing words deemed to be synonymous with existing traits, narrowing Allport and Odbert's list of 4,500 down to 171 (Cattell, 1943). The potentially overlapping nature of trait words was not seen as a problem for Gordon Allport, as he felt that our adjectives which are utilized to describe personality were touching upon a deeper construct. Allport intended to remove the moral implications of scientific trait words, espousing the value of developing a more rigorous and controlled language for research into personality traits. Honesty cannot ever be completely isolated from related traits such as trustworthiness and loyalty. Although these three traits are not completely overlapping and each adds functional value to a personality description, each trait has a different moral and societal implication, which impacts the ability to accurately assess their presence.

From his delineation of trait words and conceptualizations of trait expression, the lexical work which gave the field a common list of trait names to his behavioral motivation theories, Gordon Allport developed both a common language of study and a more rigorous roadmap for inquiry into personality traits. From his work decades of trait researchers expanded upon Allport's model and refined the nature of traits.

See Also

Cattell Trait Theory Lexical Analysis
FFM and Facets

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Whole Trait Theory

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Whole Trait Theory is an integration of personality and social psychology, serving as a new, combined theory (i.e. synthesis) from the person-situation debate. It outlines a process that explains how people can behave the same over time and also change in different situations.

The Person-Situation Debate

Whole Trait Theory emerged as a consequence of the person-situation debate. There were two camps to the person-situation debate that were diametrically opposed for decades. Situationist theorists asserted that people behave inconsonantly in different situations, stressing that this inconsistency means that situational contexts are vastly more important than an individual's personality. In contrast, trait theorists proposed that when you average across many situations, people do behave consistently, and personality traits are the best predictors of an individual's behavior. There was one fundamental question to resolve this debate: how could a single theory explain why people behave consistently most of the time and inconsistently in different situations?

Ultimately, both traits and situations are needed to explain what makes people different, how people differ, and why people differ. Whole Trait Theory was a new theory that combined the ideas of these two opposing sides. Rather than keeping traits and situations apart, Whole Trait Theory explained a process of how they can complement each other to explain behavior.

A New Approach to Traits

Traditionally, personality traits are measured once, in which a person reflects on his or her personality in general. People commonly reflect on behavior in different scenarios or whether certain adjectives describe how they normally think, feel, or behave. In contrast, a

density distribution of personality states (Fleeson, 2001) was a new approach to measuring traits. This personality measure is taken many times across a many different time points and situations. These repeated measurements come together to make an individual bell curve for each trait, which is called a density distribution.

These short personality measurements are called personality states. Personality states are how people act, think, or feel in a given moment. The concept of states was commonly used in research on emotions, showing how people change their mood in different situations. However, the same idea of states can be applied to explain changes in personality. A personality state is the same measure as a personality trait, but it occurs over a shorter period of time. For example, a common way to measure trait extraversion is to ask people how sociable they are in general. As such, the way to measure a personality state is to ask people how sociable they are over a given time frame (e.g. 30 minutes or 2 hours).

By asking people about their personality states across different situations, a density distribution of each individual's personality states (or trait manifestations) can be formed. This distribution looks like a bell curve with most responses around someone's average trait level, but also some points on the extremes of the dimension that show an individual's changes in behavior. The main benefit of the density distributions approach is that it can be used to test both the ways people are different from each other (between-person differences) and the ways individuals change in different situations (within-person differences). Statistically, the mean level of a trait can be used to test how two people are different on average, but the standard deviation can be used to test how often the same person changes their behavior in different situations. People have different distributions from each other. Some people vary little across different situations (low standard deviation), and some people vary a lot across situations (high standard deviation). Also, like other trait measures, some people on average are higher or lower on a distribution (reflected by their distribution mean). For example, a person who is high on extraversion may often act sociable in social gatherings, but they also may be quiet while working in the office. Work has shown that the within-person variance is substantially higher than the between-person variance on personality states, and personality states can vary as much as emotions from moment to moment. In other words, people are inconsistent in their behavior in different situations, yet they are still consistent when the researcher averages across these situations (with average correlations around .80 from one week to the next).

Whole Trait Theory incorporates the density distributions approach into a broader model of personality. Whole Trait Theory proposes that there are two sides to a trait: a descriptive side and an explanatory side (Fleeson, 2012). The descriptive side is the density distribution of personality states, which describes how people actually behave. The explanatory side builds on Allport's definition of traits and the cognitive-affective processing system (CAPS) model that traits are comprised of links among social-cognitive mechanisms, which can include internal factors, environmental influences, goals, and situational contexts. Ultimately, the explanatory side of traits functions to explain the descriptive side of traits.

Both the explanatory side and the descriptive side are two distinct sides of the same trait, which come together to form the "whole trait." These two sides can be viewed as two sides of the same coin – both sides must exist for the coin to exist. Yet each side is distinct because they are measuring two different things. While these two sides are independent from each other, there is a clear, causal relationship between the two sides – the explanatory side causes the descriptive side of states. As such, one side cannot exist in isolation of the other side.

Measuring Whole Traits

To measure whole traits, researchers need to measure the density distribution of personality states for each participant. Even though the explanatory side of traits incorporates social-cognitive mechanisms in its definition, traditional measures of personality traits can be used to measure the explanatory side of traits. For the descriptive side, personality state measure must be used to capture the descriptive side of traits. Common practice is to use personality adjectives in trait and state sentences to allow a direct comparison between the two measures (Fleeson, 2001). For example, the adjective "assertive" is a common extraversion item in personality scales. The item "How assertive are you in general?" can be used to measure the explanatory side of traits, while the item "How assertive were you in the last 30 minutes?" can be used to measure the descriptive side of traits. The same self-report scale can be used for both scales (i.e. answering each item on a 1–7 scale), which makes it easier to compare the explanatory side with the descriptive side.

Personality states are best measured through experience-sampling methodology (ESM), which has evolved over the past few decades from beeper and pager methods, to personal digital assistants (PDAs), to the present use of internet surveys on smartphones. Participants are instructed to complete the same short survey of personality states multiple times a day for several days (e.g. 5 times a day for 10–14 days). Participants should complete enough reports to capture both the stability and variability in personality across many different situations in their everyday lives.

Integrated Personality and Situation Process

Whole Trait Theory proposes that traits have two sides, and thus two separate numerical values for a trait. While these two sides generally have strong correlations with each other, the explanatory side may not always match descriptive side of the trait. People shift in their personality states regularly, similar to changing emotions. These changes can be explained to some extent by the explanatory side's social-cognitive mechanisms, which include situational, motivational, and cognitive influences. The explanatory and descriptive sides of traits are connected through these various mechanisms, which are integrative processes to explain people's actual behavior. Specifically, researchers using Whole Trait Theory try to explain how and why personality is stable and is variable across contexts by exploring the mechanisms between the explanatory and descriptive side of traits.

There are many social-cognitive mechanisms that have been and could be incorporated into Whole Trait Theory. These influences can be internal cognitions (e.g. motives or values) or external situational factors.

Situational

There are factors within a situational context that may help explain how or why people change their personality in a given moment. These contexts can be different environments – such as school, work, social, sport, and so on. It also may include certain situational cues or characteristics that influences an individual's personality state. For example, a boring situation may cause someone to engage in more (or less)

extraverted behavior. Other theories have proposed how situation characteristics may trigger certain cognitive-affective units of behavior (e.g. the CAPS model, DIAMONDS, etc.). However, the key difference is that Whole Trait Theory includes the structure of the Big Five to organize these meaningful differences. Still, existing theories and findings are not completely incompatible with the ideas presented in Whole Trait Theory.

Motivational

Research has shown increasing evidence that there is a strong relationship between the goals people are pursing and their personality states. Momentary goals predicted a large amount of fluctuations in state extraversion and state conscientiousness (50–75%; McCabe & Fleeson, 2012, 2016). Additional work showed that there are different goals for extraversion and conscientiousness, indicating goals can be mechanisms for personality states only if the personality state is relevant to the pursuit of the goal. For example, people trying to have fun were more extraverted, while people who were trying to get work done were more conscientious. Moreover, experimental work showed that goals cause changes in personality states. There is evidence that these goal-state relationships are also found with observer reports and are not limited to self-report.

Additional Constructs

Whole Trait Theory has proposed additional social-cognitive mechanisms that could be included as mechanisms to explain behavior. These mechanisms include narratives, values, beliefs, attitudes, competencies, expectancies, and others. Existing concepts, theories, and findings in social psychology also can be applied within this model as possible mechanisms to explain the descriptive side of traits.

Comparisons to Other Theories

Whole Trait Theory is compatible with other personality theories. It builds on existing trait theory, with the Big Five model of personality as its focal point. It serves to explain how and why the Big Five exists, as well as identify the specific functions of personality traits. Prior to Whole Trait Theory, trait theory was limited, merely describing differences between people that were important predictors of major life outcomes. A common critique of trait theory was that it describes who people are, but traits could not explain how or why people do what they do. Whole Trait Theory serves to enhance existing trait theories, by integrating processes into the ways in which personality is expressed in everyday life. Moreover, Whole Trait Theory can use the rich findings from existing Big Five research by applying trait-outcome relationships to momentary trait-state relationships. For example, research has shown the relationship between state extraversion and state positive affect, building on the work between trait extraversion and trait positive affect.

Moreover, Whole Trait Theory includes motivational and cognitive concepts within the domain of personality. Other theories (e.g. Five-Factor Theory, Neo-Socioanalytic Model, etc.) keep these concepts separate, and often view motivational and cognitive concepts as

outcomes of personality traits. Whole Trait Theory flips the direction of causality – these cognitive-motivational mechanisms cause personality states, which ultimately reflect the descriptive side of a personality trait. Ultimately, Whole Trait Theory is inclusive, uniting advances from personality, social, cognitive, and motivational perspectives in psychology.

See Also

Big Five
CAPS
Personality Stability and Change over Time
Personality Stability Over Time
Person-Situation Interactions
Trait Theory of Allport

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Theoretical and Methodological Issues in Personality Research

General Concerns and Considerations

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Personality scientists can access an array of research methods that is exceptionally broad. In principle, breadth is advantageous; it enables researchers to select data-gathering tools that best fit their professional goals. In practice, however, wise selection can be challenging. A proper fit of methods to theoretical aims, and eventual empirical claims, requires attention to a set of conceptual considerations. These considerations bear not only on the choice of data-collection techniques, but also on the analysis and interpretation of the evidence they yield.

Three conceptual considerations stand out. *Pretheoretical* considerations constrain the conclusions that personality psychology may draw from data. *Theoretical* positions contain assumptions about the types that are required to assess personality structure, dispositions, person-situation interactions, and inter-individual differences. Finally, *pragmatic* concerns guide choices that one can make from among alternative data-collection tools.

Pretheoretical Constraints

Pretheoretical considerations are general principles of scientific logic and inference. We refer to them as "pretheoretical" because they developed outside of, and commonly prior to, theoretical developments in personality psychology, per se. The relevant principles generally come from philosophy (especially the philosophy of science), measurement theory, and statistics. No matter what one's theoretical orientation is, these are principles to which the personality scientist must adhere.

Although developed outside of the field, pretheoretical principles have compelling implications for personality research. In particular, they constrain the conclusions one may draw from various research designs and forms of data.

Constraints in the Study of Personality Development

The study of personality change across the life course provides a simple example of how pretheoretical principles constrain the selection and interpretation of research methods. The constraint arises when personality psychologists wish to determine whether a given personality quality changes systematically across the course of life.

When selecting a research design, statistical principles indicate that one simple design – a cross-sectional comparison of people of different ages with respect to the personality quality – is insufficient to yield unequivocal conclusions about change across the life course. At any given point in time, people of different ages represent different cohort groups who may have different sociohistorical experiences. A comparison of age groups thus confounds age of research participant with sociohistorical influences that may have affected one, but not another, cohort. This constraint underscores the importance of longitudinal methods, in which the same individuals are studied across extended time periods.

Constraints in Establishing Causality

A second example of pretheoretical constraints arises when the researcher's goal is to establish causality, that is, to determine whether a personality factor causally contributes to the occurrence of a behavioral outcome. In this case, the relevant pretheoretical constraints come from scholarship in the study of scientific explanation. Although different positions can be found in this field, a core principle is widely accepted: A minimal condition for establishing causality is to document whether a potential causal factor covaries with a given outcome. An extension of the covariation principle is the "manipulability" criterion of Woodward (2003), who explains that if one wishes to claim that a process causally contributes to observed outcome, then a manipulation of the process should produce a change in the outcome; the manipulated change, in other words, should covary with the outcome of interest.

These considerations raise three points that bear on research methodology. The first is the value of *experimental* personality research; as in any branch of the psychology, in personality psychology experimental methods are the tools of choice for establishing causality. The second is a warning about "third variables" when correlational methods are employed. An observed covariation between a personality quality and an outcome could reflect, at least in part, the influence of an unobserved third factor that covaries with the personality quality. For example, an observed correlation between openness to experience and academic outcomes could reflect the influence of fluid intelligence, which correlates with openness, on academic performance. Pretheoretical considerations constrain the personality psychologist from claiming that the correlated personality quality causally explains the outcome. The third point involves the choice not only of methods, but of theoretical constructs. Some personality constructs are conceived as fixed qualities; for example, personality traits identified in latent variable analyses of inter-individual differences are often viewed as essentially unchanging (or displaying only minimal change) once an individual reaches adulthood. For any given individual, then, these qualities are constants; the person's standing on the traits is fixed. As others have explained, since the traits are constants, they do not covary with any behavioral occurrences and thus cannot be invoked as causes of a behavioral outcome. Claiming

that a static disposition is the cause of a given person's actions (e.g. "Mary's high-level extraversion was the cause of her deciding to attend the party today") is simply not a theoretical option; scholarship outside of the field constrains the personality scientist from making that claim. The personality psychologist who wishes to determine the causal impact of personality qualities on social outcomes must attend to such constraints when developing theory and selecting research methods.

Constraints in the Study of Personality Architecture

A third goal for which the personality psychologist faces pretheoretical constraints is the identification and assessment of *personality architecture*, that is, the intra-individual organization and functioning of personality structures and dynamics. Theorists have provided models of personality architecture ever since the landmark work of Freud. Perhaps the major advance in personality theory since that time is the effort to ground theoretical models in objective scientific evidence.

When seeking such evidence, one faces a pretheoretical constraint that stems from a principle known as the "fallacy of division": If a statement correctly characterizes a population, it is fallacious to assume that the statement also characterizes each of the individuals in the population. Applied to the psychology of personality, this implies that statistical analyses of populations cannot be assumed to provide information about personality architecture at the individual level. For example, if a dimension such as generalized "agreeableness" emerges in analyses of inter-individual differences in the population, one cannot assume that each individual possesses a corresponding "agreeableness" mental structure. Making such an assumption is not a theoretical option; it is a violation of a pretheoretical constraint. Measurement theory, and associated computer simulations, document convincingly that intra-individual psychological tendencies may diverge markedly from inter-individual dimensions that are found in statistical analyses of the population as a whole.

The psychologist interested in intra-individual personality architecture thus must turn to intra-individual research methods. These may include experience sampling methods (see below) that provide intensive study of the individual case, or idiographic research strategies that employ laboratory-based measures (also see below) that yield detailed portraits of the enduring belief systems and dynamic appraisal processes that characterize a given individual's personality structures and processes.

Theoretical Assumptions

Theoretical assumptions, unlike pretheoretical constraints, are scientific beliefs associated with conceptual approaches in the study of personality. Personality psychology has, throughout its history, harbored alternative theories. The theories differ in the assumptions they make about the phenomena that are most important to target in research, and the methods through which those phenomena can best be understood. Ideally, researchers would be cognizant of these assumptions and would select research methods that are consistent with the explicit and implicit assumptions of their favored theory.

Conceptualizing and Assessing Dispositions

One domain where theoretical assumptions shape methodological choices is the study of personality *dispositions*, that is, individuals' affective, cognitive, and behavioral tendencies. All major approaches to personality aim to assess and understand dispositions. However, approaches differ not only in their favored methods for assessing dispositions, but also in their beliefs about the psychological phenomena that constitute individuals' key dispositional tendencies.

At present, there are three major approaches to assessing dispositions: trait-based approaches, which rely on global and nomothetic measures; social-cognitive approaches, which often employ contextualized and idiographically tailored measures; and narrative approaches to the study of the individual, which call for qualitative methods of research.

Dispositions as Context-Free Tendencies

Trait-based approaches endeavor to assess individuals' global, context-free dispositions. They generally do so using measures whose test items refer to trait-relevant behavior, cognitions, and attitudes. Responses to the items are aggregated, that is, are averaged together and used to predict individual actions or general trends in individuals' behavior.

The aggregation process reveals the context-free assumption embedded in the trait approach. Once one averages together responses to test items that reference different circumstances (e.g. items that reference social behavior toward friends and toward strangers, which are found on popular measures of extraversion), information about the potential role of social context is lost. Inferences made from these measures thus implicitly assume that behavior is substantially temporally and cross-situationally consistent; that is, one's trait-relevant behavior in one situation should generalize to other situations.

The most popular example of this approach is the Five Factor Model, which grew out of two important milestones in personality psychology in the twentieth century: the lexical hypothesis and factor analysis. Advocates of the lexical hypothesis used factor analysis to reduce the thousands of adjectives in the English language to anywhere from two to 16 dimensions. More recently, however, five dimensions of personality (Neuroticism, Extraversion, Openness to Experience, Conscientiousness, and Agreeableness) have been recovered using these methods, both across time and across languages. In addition, some theorists assume that trait dimensions derived from factor analytics are both descriptive and explanatory; that is, they both describe differences among people and explain why they occur. Traits in this view are mechanisms that underlie dispositional tendencies in behavior.

Contextually-Linked Dispositions

An alternative conception of dispositions derives from social-cognitive approaches, which posit that personality and behavior can only be understood in context. The enduring beliefs and cognitive appraisals that are central to personality functioning inherently pertain to the potentially idiosyncratic contexts of individuals' lives. Social-cognitive approaches thus abandon the assumption that personality dispositions consist merely of decontextualized average tendencies; instead, distinctive variations across context in thought and action may distinguish individuals from one another.

This theoretical assumption has direct implications for research methods. Rather than measuring trait-relevant behaviors across a variety of situations and aggregating across them, social-cognitivists commonly represent the responses of an individual to each of a variety of circumstances. For example, research on self-efficacy mechanisms may assess individuals' beliefs about their capabilities to cope with each of a variety of specified challenges. *If … then …* profile analyses of social behavior chart variations in behavior across a range of psychologically significant situations. Idiographic analyses of knowledge structures and appraisal processes aim to assess not only the distinctive beliefs of the individual, but also the potentially distinctive sets of situations that activate those beliefs. These idiographic research methods are similar to traditional case studies in that both strive to portray the richness of the psychological life of the individual in his or her life contexts.

Throughout, the theoretical assumption guiding social-cognitive research is that a consideration of situations is of central theoretical relevance to the assessment of personality. Cognitive and affective structures (e.g. belief and knowledge structures) and processes (e.g. situational and affective appraisals) are mechanisms of personality that emerge through reciprocal interactions with the social world. Environments affect personality structures and processes, which in turn partially contribute to which situations individuals experience and how they appraise them. Personality emerges from a dynamic and complex interplay between personality processes and structures, which collectively may be called personality systems, and the social world. These theoretical assumptions guide the selection of research methods.

Narratives as Cognitive-Experiential Dispositions

A third approach with interesting implications for the conceptualization of disposition is the family of narrative approaches, which assert that a core of personality is the narratives, or life stories, that individuals construct throughout their lives, both retrospectively and prospectively. The enduring tendency to express one versus another type of life story constitutes a central personality disposition in this view. Relatedly, some theorists highlight the fact that much of mental life is structured as a linguistically-mediated discourse, with individuals engaging in dialogues – including internal dialogues with imagined others.

Such narrative approaches assert that personality cannot be fully defined by traits or by cognitive and affective processes. Thus, asking someone either how they are in general or how they are in two distinct situations does not assess personality. Instead, personality must be assessed by qualitative research methods that yield a thorough understanding of an individual's life story, and the particular themes they recruit to tell it. Researchers may, for example, seek to identify these that characterize the life-story narrative of an individual, or perhaps a group of individuals who share sociohistorical circumstances.

In sum, theoretical assumptions shape the conception of what constitutes the core dispositions of personality that define the individual and distinguish individuals from one another. These diverse conceptions, in turn, inherently call for different methods of assessing dispositional qualities.

Linking Theory and Data-Collection Methods

In addition to the study of dispositions, a second issue for which theoretical assumptions shape methodological choices is the selection of data-gathering tools. Personality psychologists have long recognized that these tools include self-reports, observer reports,

and laboratory methods (including "implicit" techniques) that reveal personality qualities in an indirect manner. Different theoretical positions highlight advantages, and disadvantages, or alternative methods.

Self-Report Methods

Self-report measures assume access, accuracy, and honesty. If self-report measures are to be both reliable and valid, then people must have conscious access to the information they are asked to report. Sometimes this access is an explicit theoretical claim; for example, humanistic theories of personality highlight people's conscious perceptions of self, social-cognitive approaches claim that people's capacity for self-reflection gives them consciously access to thoughts involving personal capabilities for performance and personal goals for future action, and narrative approaches the human capacity to formulate and express one's life story. Yet, at other times, theorists rely on the veracity of self-reports without making the conceptual basis of that reliance explicit. Consider trait approaches, which historically have relied heavily on self-report measures. Accuracy is critical in trait approaches; if someone believes that she is very agreeable, even when she is not, her personality will be mis-classified in a traditional trait framework. Despite this reliance, trait approaches rarely support the presumption of accuracy by detailing the cognitive processes through which people make judgments about their tendencies and preferences, and explaining how these processes can be trusted to yield accurate judgment.

The researcher can select from among several varieties of self-reports, all of which share the previous assumptions as well as possessing approach-specific assumptions. The most commonly-chosen option is retrospective self-report measures, in which participants use scales to rate themselves or their past behavior over a specific period of time that ranges anywhere from the previous several hours to "in general." Retrospective reports typically assume that individuals would rate themselves or their behavior the same at another time, such as the time the behavior occurred; that is, over replications of the same questionnaire, participants' reports should be reliable.

If one questions the accuracy of retrospection, or if one's theory highlights the need to assess antecedent events and contexts (rather than context-free tendencies), one may opt for self-reports that are based on experience sampling, or ecological momentary assessment. PDAs, beepers, or cell phones signal participants, who respond by reporting on their current or immediately prior experience. Three advantages of experience sampling stand out: the ability to assess the contexts in which experiences occur; the enhanced validity that results if, as memory research suggests, more proximate events are judged more accurately; and the statistical representativeness that results if experience sampling is performed at random times.

A final type of self-report is interviews, which generally are conversations consisting of mostly open-ended questions that may be structured (i.e. a set list of questions from which the researcher is not to deviate), semi-structured, or unstructured. Theoretical assumptions may drive the choice of interview methods. Theories that highlight the narrative and dialogical qualities of mental life inherently suggest that numerical ratings scales are insufficient to capture personality, and must be supplemental by methods that employ natural language.

Observer Reports

Observer-report measures, like self-report measures, make assumptions about people's access to personality-relevant information, their accuracy in forming judgments, and their honesty in reporting those judgments to psychologists. However, observer-report measures assume these qualities not on the part of the person being assessed, but on the part of an observer of that person.

A set of theoretical beliefs motivates the use of observer-report measures. One may believe that individuals lack self-insight or that they are motivated to distort their true self for the purposes of positive self-presentation. In addition, one may claim that individuals are *less* likely to distort personality judgments when reporting about others than when reporting about themselves; for example, self-ratings may reflect a desire to rate oneself as higher than the average person on a variety of trait and performance dimensions (the so-called better-than-average effect), whereas observer's ratings should be less biased in this regard. If one presupposes that observers of social behavior are relatively accurate judges of others' actions and qualities, then observer reports are a sound data-collection tool.

In addition, observer reports rest on a deeper assumption, namely, that behavioral observations made in relative ignorance of the personal history and subjective experiences of the observed individuals are a valuable source of data in personality science. Observers can categorize actions as being indicative of one or another trait category. But, especially when observing people who they do not know well, observers may be unable to identify the meaning of the actions of the individual observer, from the perspective of that actor. Different individuals commonly engage in the same type of overt action for qualitatively different reasons.

Observer reports typically come in two main varieties: retrospective reports and behavioral observations. Retrospective reports might either be standalone assessments of a target's personality or a supplement to a target's self-rating. Retrospective observer reports, like retrospective self-reports, assume that observers would rate a target the same at different points in time and if they were experiencing that person or their behavior in context. In other words, they assume that retrospective reports reflect naturalistic assessments.

As with experience sampling, when one is interested in the contexts within which personality data are obtained, behavioral observation methods are a naturalistic contextualized alternative. Behavioral observations typically involve observers who are trained to assess individuals' behavior and environments in particular ways and record them using a predetermined format. Observations may be done using a rating sheet or simply by taking field notes. Observations may be done in person or filmed and replayed at a later point in time. More recent computer scientists have created software programs that recognize facial expressions and some simple and complex behaviors. Although relatively new, these programs are continuously updating and can flexibly expand to include any well-defined behavior. They drastically reduce the time needed to analyze behavior, but are expensive. Thus, a researcher must weigh the cost of using such a system with the cost of using human observers.

Laboratory Methods

A third form of data collection can be summarized by the term "laboratory methods." By this, we mean the wide range of research methods designed to identify personality-relevant inter-individual differences and intra-individual structures through formal scientific

methods that do not rely on the intuitive personality judgments of research participants. These methods, in other words, generally abandon the assumption that research participants have direct conscious access to cognitive, emotional, and motivational contents the personality psychologist wishes to assess. They often bring to bear, in personality psychology, research tools that originally were developed in other branches of psychological science.

The broad range of laboratory methods can be summarized as consisting of three types. One treats responses that are made consciously as indirect indicators of psychological qualities to which people do not have direct conscious access. In research on motivation, for example, participants may be asked to tell stories in response to ambiguous images. Psychological themes that are evident across multiple stories are a sign of underlying motives possessed by the individual. Social-cognitive research on self-concept provides another example. Participants are asked to indicate, as quickly as possible, whether they think a given psychological quality describes them. Investigators time their speed of response. Quicker responses indicate that an individual possesses a highly developed and accessible knowledge structure, or schema, with respect to the attribute. A second class of laboratory methods is psychophysiological. Measures of skin conductance or heart rate, for example, may reveal arousal that reflects a state of anxiety. Finally, brain imaging methods are increasingly used to identify neural systems, and interconnected networks of systems, that underlie personality structures and processes. A recent development of great note is the application of brain imaging methods to the study of "higher-level" personality process such as self-reflection and personal goal setting.

Theoretical considerations often compel the use of laboratory measures. Theories of personality and motivation may claim that individuals do not have conscious access to the motives that drive their own behavior. Theories of self-concept may stipulate the existence of a holistic self that rests on rapid, parallel cognitive processes on which people cannot accurately self-reflect. Such theoretical claims of course require the researcher to pursue alternatives to self-report measures.

Pragmatic Choices

The above discussions highlight ways in which methodological choices are shaped by theoretical concerns. However, in practice, these choices also are shaped by pragmatic considerations. Basic and applied psychologists often wish to accomplish practical goals, such as the prediction of future behavior from inter-individual differences in personality test scores, and select methods that combine statistical power with efficiency.

Bandwidth

When selecting from among the field's many measurement instruments, a major consideration involves "bandwidth." In psychological testing, bandwidth refers to the range of phenomena to which a test applies. Assessments that each pertain to the same type of psychological process can vary in their range of applicability – that is, in their bandwidth.

Consider, for example, assessments of anxiety. One could assess anxiety with respect to a specific social context (e.g. public-speaking anxiety), or social contexts in general (generalized social anxiety), or – if one wanted an anxiety measure of maximal breadth – with no specification of context (i.e. global trait anxiety).

In applications, the choice of bandwidth can be made on pragmatic grounds. As a general rule, prediction accuracy is maximized when the bandwidth of a personality measure matches the breadth of the outcome one wishes to predict. If one is screening applicants to a job with diverse duties, each of which requires conscientious behavior, one may base selections on a measure of general conscientiousness. But if one were trying to predict performance in a narrow set of circumstances, such as maintaining attention to tasks even when under stress or experiencing setbacks, a measure of less breath would be preferred.

The principle of bandwidth applies not only to measures of behavioral dispositions, but also to measures of cognitive personality variables. One example is self-efficacy beliefs. One could assess self-efficacy beliefs with respect to a specific activity (e.g. in an academic setting, students' subjective beliefs about their capabilities for performance on an upcoming exam), or with respect to a broader class of activities (e.g. attaining high grades in one's major in college), or one could assess generalized self-efficacy beliefs, that is, an overall sense of one's level of behavioral competencies. Again, a match between the breadth of the measured construct and the breadth of the outcome of interest will benefit prediction. For the pragmatic purpose of predicting future behavior, one might only select the generalized measure if one were predicting an aggregate of performance across a diverse range of activities. A disadvantage of the broad-bandwidth measures is that they sacrifice information about within-person variability from one behavioral challenge to another.

Medium of Data Acquisition

Personality psychologists also face pragmatic choices when selecting the medium to use to collect data, that is, the means through which one communicates with individuals to acquire data. At present, three broad categories of media predominate: in-person, remote, and Big Data analytics. Although the choice from among media should be made carefully, this choice generally cannot be based on formal principles of personality theory. It instead rests on pragmatic factors, including available resources.

In-person media include self-report inventories, observer reports, and interviews, each of which has been described previously. Advantages of in-person measurements include participant engagement and experimental control. Personal interactions with an experimenter can make participants more accountable for their responses; that is, participants are likely to be more careful in making responses. The experimenter, in turn, can enhance experimental control by ensuring that all participants complete the task under similar conditions. Both advantages can reduce the chance of Type II error in research on individual differences. These advantages, however, come at a price. The logistics of in-person data collection (acquiring lab space, recruiting participants and bringing them to the place of data collection, preparing experimental materials, executing random assignment, and so forth) are costly. Experimenter-demand effects, such as participants' desire to make a good

impression on the experimenter, are possible and must be reduced. Because in-person studies can be costly and laborious, one may choose to collect data remotely.

In remote data collection, investigators may communicate with participants through electronic means such as the internet or smartphone apps. Key advantages of such remote data acquisition include the speed of data collection, a reduction in experimenter effects, and greater ease in recruiting diverse samples that are representative of the population at large (since one can reach individuals anywhere in the world who have internet access). In addition, participants may answer some types of research materials more honestly when afforded the anonymity of remote responding. Historically, these advantages were achieved by mailing out surveys and waiting for responses to be returned. Today, however, it is more common to employ web-based platforms (e.g. Qualtrics) that make participant responses immediately available to researchers. Faster and sometimes cheaper data collection through remote means comes at costs that may include decreased participant engagement, biases that result when individuals choose not to respond to materials, and reduced experimental control. Unlike in-person studies, participants in remote studies complete tasks when, how, and at what pace they choose. Thus, experimenters cannot be sure participants are attending fully to the task and not, for example, multitasking. Although more common with mail-in studies than with online studies, recruited participants may also choose not to respond. This non-response bias may limit the representativeness of the sample and impact results of a study. Decreased engagement, multitasking, and non-response bias are all examples of decreased experimental control in remote studies. That is, experimenters cannot be sure that certain variables are held constant, which may limit the inferences that can be made from collected data.

The third medium, Big Data analytics, has been triggered by the availability of very large-scale digital storage. Social media and internet shopping sites may store hundreds of choices and expressions by millions of users. The stored data sets are so large and complex that traditional statistical tools may be inadequate for their analysis. Researchers thus may seek to identify structures in the data sets through data-mining techniques that combine traditional statistics methods with alternative methods such as neural network methods or "decision tree" analyses that represent underlying structures in the data. A substantial advantage to Big Data methods is that one is analyzing actually-occurring behavior (on the internet), rather than asking individuals to reflect upon their typical behavior. However, too strong a focus on Big Data collection and analysis also has drawbacks. Because these data also are in some sense remote, the exact conditions in which responses occur may be unknown, and many data sets lack experimental control. In addition, it is difficult, in Big Data analytics, to employ measures that might indicate the beliefs, goals, and affective mechanisms underlying a given individual's responses (including the laboratory measures discussed above).

Both of the latter media, remote data-collection methods and Big Data analytics, promise to overcome psychology's traditional over-reliance on participant samples that are Western, educated, industrialized, rich, and democratic – or, as the popular acronym summarizes, WEIRD. This is a substantial advantage. Yet one must recall that many of the advances in the history of personality have derived from studying individual persons in depth, across time, and in context, and from the use of measures of cognitive and affective mechanisms that require laboratory-based procedures. A challenge for the field is to capitalize on recently-developed remote technologies without losing the richness and psychological sophistication of psychology's panoply of research methods that require in-person interaction with the individual.

See also

Big Five
Cognitive-Behavioral and Cognitive – Self-report Assessment Techniques
Experimental Approaches
Internet Research in Personality
Personal Narratives

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Cross-Cultural Research, Methodological Issues of

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Human societies engage in a wide variety of behaviors, practices, expressions, organizations and conflicts. They vary in the construction of social roles, norms and beliefs. These variations exhibit both coherence and cleavage. Similarities between and among cultures can come about as a result of geographical proximity, historical relationships, for example trade, and common languages and origin. Cross-cultural research engages in systematic comparisons of two or more cultures or two or more cultural syndromes in order to determine the occurrence, distribution, and causes of cultural variation and complexity across domains. Many cross-cultural studies address the question as to whether the knowledge of psychology, we believe to be true, is applicable to all human beings or only to some people in some cultures. One important goal of cross-cultural research is to arrive at general principles and general explanations that apply across cultures.

Cross-cultural research can contribute to psychological theory by identifying groups whose behavior does not conform to established theories and by expanding on the number and types of independent variables that we use to test our theories. In psychology, there are three variations in how cross-cultural research is conducted. First, cross-cultural studies can either be exploratory or can test specific hypotheses. Exploratory studies adopt an open-minded perspective on the nature and size of possible cultural differences, while studies that test a particular hypothesis rest on an assumption about the nature and size of the cultural difference derived from existing theory. Second, cross-cultural studies can examine the differences in human behavior between residents of different countries or members of different ethnic groups. These studies are sometimes called structure-oriented. An example would be a study of the measurable intelligence of two different culture groups. Alternatively, research may focus on specific characteristics of a country or ethnicity that relate to certain psychological variables. These studies are sometimes referred to as level-oriented studies. For example, a study of the relationship between certain "intelligences" related to cultural practices would be a level-oriented study. Finally, cross-cultural research can compare how different cultures influence the understanding

of specific constructs, for example what is meant by moderate punishment. Research could also examine the causes of different outcomes, for example the interpretation of score levels on psychological tests.

Historical Overview

While there are examples of cross-cultural comparisons that date back to early Greek writers such as Hecataeus of Miletus and Herodotus, most texts date the formal introduction of cross-cultural research to the late nineteenth century, beginning with Edward B. Tylor's statistical methods for conducting cross-cultural analyses. Some early cross-cultural researchers include W. H. R. Rivers (1905) who conducted studies of visual perception across cultures and E. G. Sumner, who wrote a four-volume work on the "Science of Society" and coined the term ethnocentrism. Another early cultural psychologist was Wilhelm Wundt (1916) who authored a multivolume work devoted to understanding folk psychology.

Etic vs. Emic

Etic and emic refer to two different approaches to field research that either gather data from the perspective of the individual within a particular social group (emic), or from the observations and interpretations of the outside researcher (etic). This distinction was originally created by Kenneth Pike (1954) to describe phonetic similarities and differences in language, but has since been transformed to describe various culturally specific or universal aspects of human behavior.

Within cross-cultural psychology the term etic is used to describe universal psychological truths that are fixed across all cultures. Emic refers to the cultural differences of psychological aspects that are specific to particular cultures. This approach has led to extensive testing of the tools researchers use when gathering data within and between cultures. Harry Triandis was an early proponent of testing the validity and reliability of psychological measures for clear and identifiable differences (Triandis & Marin, 1983). His work found that scales designed for a specific culture were more likely to find cultural differences than those that were created with the assistance of members of all of the cultures being studied. Research in this area has highlighted the importance of creating equivalent measures in order to determine which psychological principles can be considered universal, and which should be considered culturally specific.

Types of Questions

Cross-cultural research aims at understanding cultural differences, their causes, occurrence and consequences. The first question a cross-cultural researcher may ask is a descriptive one on the prevalence within a cultural group including human communities of a specific practice, belief, social role, norm, expressions and forms of organization and conflict. The second question is what are the sources of coherence or non-coherence in these behaviors.

This question could explore common history, language, and identity. It could also examine common or recurrent modes of adaptation to the environment or other sources of common human problems. The third type of question asked is what are the consequences or effects of a particular trait or expression. For example, are certain cultural differences the source of conflict or co-operation between cultures? Finally, cross-cultural researchers often ask relational questions such as how one aspect of culture, for example type of marriage is related to another aspect of culture, for example patriarchy.

Research Methods

There are a wide variety of research methods available for cross-cultural studies including correlational approaches, true experiments, observation, surveys/interviews, and projective tests.

Correlation refers to how two measurable variables are related to one another. An example of a cross-cultural correlation would be Aknin et al.'s (2013) work that explored how prosocial spending is related to well-being across 136 countries. A true experiment manipulates an independent variable in order to observe its effect on a measurable behavioral process. A priming study by Trafimow, Triandis, and Goto (1991) manipulated American and Chinese students by priming them to think in either their individual or collective identity. This prime had a significant effect on how they responded to a self-attitude measurement. Those primed individually responded from an individual perspective, and vice versa. Surveys and interviews can be used in a similar fashion once equivalence is established. Surveys can be used to determine how attitude and behavioral measures relate to particular attitudes. A good example of this is Buss' (1989) study of human mate preferences. Interviews can serve a similar purpose while allowing the researcher to gain a more detailed understanding of a participant's response to a particular question. Lastly, projective tests, like the Thematic Apperception Test, allow cultural research to be done without the barrier of language. Hudson (1960) used a variation of the TAT among the Bantu and found interesting variations in perception. The Bantu did not see relative size as an indication of depth within the picture. Hudson's findings showed that experience with European culture was an important factor in depth perception.

Establishing Equivalence

It did not take long for cross-cultural research to realize that the concept of equivalence was an important issue in reporting valid and reliable results. It was clear that simply translating a measure into another language would not produce accurate results. Equivalency, within a cross-cultural context, can refer to language, conceptualizations, and empirical methods, each of which needs to be equivalent for the cultures being studied. Assurance that the language in your measures are equivalent can be achieved through the process of back-translation. This process requires cultural researchers to have their measures translated into another language, and then have it translated back into the initial language, by a different translator. If the measure is translated accurately back into the initial language, it can be said it is

linguistically equivalent. Conceptual equivalence refers to the actual meaning that a measure is attempting to gauge, and can be difficult to define accurately. For example, the term moderate as applied to punishment might mean "time out" in one culture and light paddling in another. Conceptual equivalence is generally achieved through in-depth interviews with participants of a particular culture, and through an extensive review of prior research done on a particular culture. It is vital that researchers establish the conceptual equivalence of their measures before conducting research to insure the validity of their results. In addition to conceptual equivalency, researchers must be certain they establish equivalent empirical methods. This includes equivalency in sampling, measurements, and procedures. Sampling equivalence refers to the extent to which the samples are representative of their culture and equivalent on demographic measures such as age, sex, majority/minority group membership, etc. To achieve measurement equivalence, the researchers must insure that the measures used are valid and reliable and that the wording in the measures passes the test of linguistic equivalence. Procedural equivalence becomes important when choosing participants. For example, is a student at a public school in one country similar to a student in a public school in a comparison country? Equivalency is key when conducting cross-cultural research, and is an important consideration that assures that researchers are taking every possible precaution against bias.

Bias

While non-equivalence can be a source of bias, there are also methodological biases that can distort data, such as sampling and procedural biases. Sampling bias can occur in two ways: the sample may not be representative of the population considered, and the two samples may not be equivalent on non-cultural aspects. For example, university students in South Texas (Americans) cannot be equivalently compared to Australian stay-at-home moms (Australians). We cannot accurately state that the two groups are representative of the greater population, and the two populations themselves are not demographically equal. Procedural bias refers to cultural differences in the collection of data that can affect the results. For example, in many psychology programs, it may be required for students to take part in research being done at the institution. However, another culture may see this type of requirement as deeply insulting, coercive or exploitative. How these two different groups understand their role in the research can differ dramatically depending on the context of their participation. Therefore, it is important that researchers understand these types of biases in their own study, and create effective procedures that are equivalent across the cultures being researched. Other important types of bias to consider are response bias and interpretation bias. Response bias refers to a methodical inclination to answer a particular way on research measurements. For example, socially desirable responding, giving answers that make oneself look good in one culture can lead to a misguided comparison between cultures. One culture may have a stronger emphasis on socially desirable responding on a particular subject than does another. As a researcher you must consider the cultural influences that may cause response bias within a particular culture. In many cases, response bias can lead to interpretation bias or the biases in the analysis or methods used to interpret the data. For example, a Likert scale may allow for

analysis of variance to be conducted. Statistical significance may show that one population responded higher on one aspect than another culture. This however leaves out an important aspect of cultural research. Conception of what the threshold items on the Likert scale mean can be vastly different between cultures. Therefore, in one culture the response *highly agree* may be another's *slightly agree*. As a researcher, steps must be taken to insure that the participants' understanding of the measurements is similar in order to accurately interpret the data.

Ethics

While cross-cultural researchers must observe all of the ethical principles outlined in the Helsinki Declaration and the Belmont Report, including fair recruitment of participants, informed consent, avoiding harm, confidentiality, working with vulnerable populations, and debriefing, there are also ethical concerns unique to cross-cultural research. The first ethical principle applies to design of the research study. Research findings on cultural differences can be used to reinforce powerful negative stereotypes regarding a cultural group and can even lead to oppression of a cultural group. Researchers must be careful to not over-interpret or over-apply their findings and to guard against applying untested assumptions about the roots of cultural differences. A second ethical concern relates to how researchers define culture. While a textbook definition may point to invariation in meaning shared by a group, transmitted across generations, that meets the survival needs of the group and provides purpose to life, researchers often boil it down to differences between nationalities, racial, or ethnic groups which can perpetuate stereotypes. One way to address this concern is to examine not group differences but instead differences in cultural syndromes such as individualism/collectivism, power-distance or masculinity. Another ethical concern involves what constitutes a sensitive topic or a vulnerable population. It should not be assumed that what is not sensitive in one culture is equally not sensitive in another culture. For example, in Western society, sex and sexuality are open for discussion whereas in many parts of the world, for example, homosexuality is a serious crime and both research participants and researchers can suffer from asking questions about a forbidden behavior. Other ethical concerns include ownership of the data, interpretation of the data and dissemination of the data. Many of the ethical issues involved in conducting cross-cultural research can be overcome by including colleagues on the research team who are from the culture or cultures being studied.

See Also

Acculturation Considerations in Personality Assessment
Considerations
Cultural Free/Fair Intelligence Test
Culture and Personality
Theoretical and Methodological Issues in Personality Research, General Concerns and

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Idiographic vs. Nomothetic Research

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Many researchers tend to use primarily nomothetic or idiographic assessments and data. It seems to be only occasionally that a researcher will use both nomothetic and idiographic assessments and data in order to help interpret the results of their studies. The nomothetic approach to assessment and data is all about generalizable data. The nomothetic approach has different paradigms at its disposal that allows it to operate both from large samples and group-based statistics as well as small samples and case-by-case study analysis. Nomothetic knowledge aims to find generalities that are common to a particular class and derive theories or laws to account for those generalities. In other words, nomothetic approaches seek to project data from large samples onto individual cases. For example, nomothetic data would show, on the National Crime Report (NCR) compiled by the Federal Bureau of Investigation (FBI), the statistical demographics of those perpetrators of the majority of certain types of crimes. So, if the majority of all "white collar" crimes are committed by white men between the ages of 40 and 55 years old, and if a "white collar" crime is committed and the police use nomothetic data, then they will likely focus on those suspects that fit the profile from the data, which in this example would be white men between the ages of 40 and 55. The idiographic approach, on the other hand, is more concerned with specific details. Idiographic judgment involves the particular details of an individual's experiences, life history, and values. The idiographic understanding is basically the science of an event or of a process. In other words, idiographic understanding is concerned with what used to be or currently is the case for a specific situation or individual. Idiographic knowledge aims to describe and explain particular phenomena. Idiographic especially looks at in-depth individual personality traits. Idiographic measures are not based on a specific method of research. Idiographic is more of an objective to accomplish than a specific research method. So, using the same example from above, if a "white collar" crime is committed and the police use idiographic data, then they would be using case-specific clues and evidence to lead them toward a viable suspect list. While nomothetic and idiographic assessments have their differences, they were never meant to be used separately. They were to be used together in order for the researchers to gain a clearer understanding of the situation.

There are several idiographic measures that are based in different approaches. The first type of idiographic measure to be discussed is game-based idiographic assessments. These assessments built into games and simulations are the cutting-edge in the next generation of assessments. Some researchers suggest that the principles of evidence-centered assessment design can improve game-based assessments. Participant information can be gathered, analyzed, and systematically used to validate claims and inferences about performance in ways that are fun, engaging, and potentially able to assess the individuals without their knowledge. Furthermore, some researchers describe how game tasks can be modified to include certain psychometric properties, such as task difficulty and task discrimination in order to support the construct validity of game-based assessments. Participant creativity and persistence are not normally assessed for in traditional assessments, but in a game-based assessment both of these characteristics can be measured in addition to other cognitive and affective characteristics. Some researchers have found a potential for a relationship between game-based assessments and an idiographic approach. The second approach comes from the dynamic assessment (DA) intervention. The two main ways of measuring DA interventions involve split-half tests and integrated scoring systems. However, there is a gap between research and practice of DA interventions. Some researchers have worked on developing a methodology that is compatible with the research and practices, especially split-half tests and integrated scoring systems. These same researchers developed an idiographic method of measurement that involves multidimensional scaling (MDS) and general procrustean analysis (GPA). This method of measurement was found to be compatible with both individual intervention and suited to building a body of evidence-based research for DA. The third approach or area to idiographic assessments involves measuring self-esteem. Idiographic implicit association tests have been found to have a stronger correlation with self-esteem than generic implicit tests. Idiographic assessments also found a higher incremental validity for unprovoked aggression when interacting with explicit measures of aggressiveness. In other words, more specific idiographic stimuli are more effective in self-concept and self-esteem.

Idiographic assessments have also been used for testing the anxious reactivity of traumatic event script-driven imagery when searching for a relationship between sleep quality and post-traumatic stress disorder (PTSD). Another idiographic measure that has been developed is called the sentence completion test for depression (SCD). This idiographic measure uses incomplete sentences, which the participant has to finish, in order to produce specific information that measures the individual's level of depressive thinking. The SCD has been found to have good construct validity, internal consistency, inter-rater reliability, sensitivity, and specificity. This assessment helps evaluators to generate hypotheses by working complementarily with questionnaires, and do so without losing any validity or reliability on the nomothetic level.

The nomothetic approach includes quantitative methods such as structured techniques and psychometric instruments. These psychometric instruments are made up of a series of questions and statements which are referred to as items. When these psychometric instruments are used in personality inventories, the participants are asked to report if and how much the items describe their behavior by using a category rating, most often a Likert scale. This allows evaluators the possibility of comparing both individual and/or group performances with normative data. The nomothetic approach typically involves lots of

people gathered in one place participating in very structured and standardized tests. How clinicians interpret the data from academic achievement and intelligence testing often involves nomothetic data. The score of each item on the assessments is correlated to how a specific age group or other demographic group answered those items. For example, if someone scores a 100 on an intelligence test, because researchers have access to nomothetic data they can interpret that the participant with this score is within the normal intelligence range for their age and other demographic.

There are biases for both nomothetic and idiographic assessments. Most of these biases come when researchers use one or the other type of assessments. Those who use nomothetic data only will often end up overlooking those specific details of an individual that would alter the interpretation otherwise. Those who use idiographic data only will often not understand how their client fits into the bigger picture or which interventions to use with their issue due to the lack of data from other studies. Assessment centers and development centers are used by organizations to evaluate and train people. These centers use methods and techniques, such as interviews, that are derived from an idiographic approach. They also use methods and techniques, such as standardized tests, that are based on a nomothetic approach. This process is used because it is believed that collecting data from these varying perspectives will allow for a more integrated judgment of people during the evaluation. An increased amount of data, while difficult to manage, helps assessors to feel more confident in their judgments, but research has shown that an increased amount of data does not help increase their accuracy. What does help is their level of competency in interpreting results and in the competency of their staff who administer the assessment measures. The use of these two approaches seems to be appropriate based on how different the personality characteristics of people are. The point is that it can be challenging to sift between what is relevant information and what is irrelevant. Deciphering this comes from determining the point of the assessment, and choosing the most valid instruments for measuring the target variable.

In the past several years, there has been a growing concern with the use of nomothetic data within the realm of forensic assessments, forensic pathology, and other law enforcement areas of interest. Nomothetic data is pulled from large groups of people and tends to hold more credibility in risk assessments. However, a current concern is that evaluators may begin depending too heavily on nomothetic data and forget the importance of idiographic data and the influence that it can have on determining a person's level of risk. Idiographic data is important due to the nature of the data being case-by-case specific. This can be useful in determining a person's current level of functioning and capacity, and then comparing that data to previous or future data on their functioning and capacity. The process of conducting a risk assessment is susceptible to a variety of errors that can negatively affect the risk determination, and most of these errors have to do with the nomothetic and idiographic aspects of the risk assessment while the other errors pertain to the integration of both types of data. This concern also includes violence risk assessments. This stems from the question whether or not it is logically, ethically, morally, or mathematically correct to use data collected from groups of people to determine the risk level of an individual. A study was performed that manipulated the extent to which an estimated level of risk is unpacked (listing no, three, or six risk factors). The study found that the degree of "unpacking" increased the likelihood that jury-eligible citizens would commit or convict a high-risk respondent and decreased the likelihood of their committing a low-risk

respondent. The researchers used Support Theory as a basis for their study which means that they took the view that "decomposing a target event increases the perceived likelihood of its occurrence and its perceived risk." In other words, the more specifically a target event is described the more likely people are to perceive an increase in its occurrence. Therefore, when the risk factors involved in a violence assessment are specifically described or listed then it is more likely for violent behavior to occur in those people who responded high on the assessment.

Some of the aforementioned concerns about forgetting either nomothetic or idiographic data in research studies have been addressed in various studies as well. In fact, there has been work performed in creating a nomothetic version of the Brunswikian Lens Model while still allowing the idiographic assessment to work its part of the measure. The idiographic side of the model measures the judgment processes of the individual involved while the nomothetic side of this model examines the evidence for possible generalizability across several individuals. Other studies that have compared time-series analyses and hierarchical linear modeling did so in order to gain a better understanding of how to incorporate idiographic and nomothetic approaches within a study.

See Also

Cross-Cultural Research, Methodological Issues of
Idiographic vs. Nomothetic Research
Longitudinal Research
Replication Research

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Longitudinal Research

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Longitudinal research refers to a broad category of research designs that involve at least one repeated observation of the same entity over time. Longitudinal designs allow researchers to assess change and stability within individuals in one or more variables as a function of time. In longitudinal personality research, the measured entity over time most likely represents individual differences, such as openness to experience or neuroticism. Traditionally, longitudinal designs have been limited to the collection of data at two measurement occasions with a focus on change either at the group or at the individual level. The collection of longitudinal data at more than two measurement occasions offers valuable information on how individuals change over time, such as the evaluation of the appropriate shape of change, the detection of interindividual or systematic variability in change, the assessment of background variables as meaningful predictors of change, and increased precision and reliability associated with the measurement of change.

There are three important issues to consider in longitudinal research (Collins, 2006). First, a theoretical model of change is necessary to describe the nature of the change phenomenon that is to be observed, such as whether and in what ways the variables are expected to change and what the possible determinants of change might be. Second, a temporal design is required to observe the change phenomenon of interest. The temporal design affords a clear and detailed view of the targeted process, including timing, frequency, and spacing of repeated observations. Third, the statistical model is the direct operationalization of the theoretical model. Though all three issues are important, the theoretical model of change provides the foundation for choosing the appropriate temporal design and thus the most appropriate statistical model.

Examining Longitudinal Change

The main benefit of longitudinal research is that it allows examination of how variables or constructs unfold over time and how changes vary within and across individuals. That being said, it is important to highlight the different perspectives of change and stability, as each of these offers a unique perspective to the change processes under investigation (Allemand, Aschwanden, Martin, & Grünenfelder-Steiger, 2017). First, when studying constructs over time, it is implicitly assumed that the measurement process of constructs is equivalent across measurement occasions. But changes can only be unambiguously interpreted as a reflection of a developmental or change process when items of a questionnaire or experimental stimuli do not change connotation or contribution to the underlying construct over time. Therefore, establishing longitudinal measurement equivalence is an essential prerequisite for the study of constructs over time. Second, structural stability refers to whether a set of indicators demonstrates similar factor structures over time. A stable structure would imply that the positioning of indicators relative to each other remains stable, suggesting that their meaning remains unaffected over time. This type of stability can address the question of whether the correlational pattern among a set of variables is stable over time. Third, rank-order stability refers to whether individuals maintain their relative ranking on a variable of interest in a given sample. In other words, questions of rank-order stability (differential stability) address whether initially high scorers on a variable tend to remain high scorers in a subsequent assessment of the same variable relative to other people. Tests of this form of stability tend to focus on whether initial scores or frequencies correlate with later assessments of the same construct. Fourth, mean-level change refers to the average level change of a construct over a set period of time. For instance, one can ask whether a certain personality characteristic increases or decreases over time, such as when a person becomes more assertive or less neurotic. Mean-level change is found when most people of a sample change in the same way during a specified period of time. Fifth, stability of variance (stability of divergence) reflects whether a sample of individuals demonstrates similar or greater variability on a behavior or construct over time. This form of stability thus examines whether individuals differ with regard to a certain behavior to a similar or variable extent across time. Testing stability of variance often requires structural equation modeling and assesses whether the latent variables of interest show greater variability at one time point than another. Finally, questions regarding interindividual differences in within-person change are among the more interesting ones when studying longitudinal development and change. In this case, change of a variable or a construct overall is not in question, but rather whether individuals show similar levels of change on that construct over time. In analytic terms, this effect often refers to whether significant variability is evident in the slope or change parameters of a given construct. Taken together, the main advantage of longitudinal research designs is that they allow the study of several conceptually distinct ways of development and changing of one or more variables over time.

Longitudinal Research to Study Developmental Change

Longitudinal research differs as a function of the temporal design. One can distinguish between two broad types of research: traditional long-term longitudinal studies and intensive short-term longitudinal studies. Traditional longitudinal research designs are used for

tracking individuals over relatively long time intervals such as several years or even decades (Hertzog & Nesselroade, 2003). The theoretical models of change underlying long-term longitudinal research refer to the development of rather enduring aspects of personality, that is, personality traits that are typically defined as relatively stable patterns of thoughts, feelings, and behaviors over time. Hence, in a theoretical model for long-term personality trait change we would not expect change at a rapid rate but we would rather expect slow developmental processes over longer time periods. Therefore, in a theoretical model of change, it is important to consider the timing, frequency, and spacing of repeated observations that are needed to accurately capture systematic and interindividual differences of change in personality traits. This in turn influences the selection of the temporal design and statistical model. Time intervals that are too short or too long in relation to the nature of the phenomenon being studied can produce data that, in some cases, is overly sensitive to measurement errors and carryover effects and, in other cases, is insensitive to change and variability. Traditional longitudinal studies are typically characterized by widely spaced single measurements, often spanning several years. Those designs are referred to as panel designs or multi-wave designs, since their nature is characterized by repeated waves of single measurements. They typically address developmental change. For example, longitudinal research on personality development has shown that despite their enduring nature, personality traits can change over years and decades and continue to change in adulthood into old age (Allemand et al., 2017). Moreover, research has also shown that developmental changes over and above the levels in personality traits may predict important life outcomes such as health (Steiger, Allemand, Robins, & Fend, 2014).

Intensive Longitudinal Research to Study Dynamic Processes

Intensive longitudinal research designs are used for tracking individuals over relatively short time intervals such as minutes, hours, or days (Bolger & Laurenceau, 2013). The theoretical models of change underlying intensive, short-term longitudinal research refer to dynamic processes of personality such as regulative and self-evaluative processes or emotional states in a given situation that show temporary changes and fluctuations in thoughts, feelings, and behaviors in response to internal aspects such as motives and goals and external situations such as stress exposure. In a theoretical model for short-term personality dynamics, we would expect fluctuations at a rapid rate – assessed with multiple repeated observations over a short time period. Hence, to accurately capture the unfolding of dynamic personality processes, it is important to select temporal designs that are capable of assessing changes and fluctuations from moment to moment in the short term. Intensive longitudinal studies can involve end-of-day assessments over a few weeks, or frequent assessments throughout a day, an hour, or even minutes. The frequency of measurement occasions within the study design determines how fine grained the analysis of temporal associations can be. Therefore, these designs may be less suited to tap meaningful change that develops in a person across a longer period of time but well suited to assess intra-individual variability in terms of fluctuations as a deviation from the person's general mean level or prior levels. Importantly, not all short-term fluctuations contain practically or theoretically important information, but can be caused by measurement error. The study of dynamic processes requires statistical models and

methods that can deal with multiple intensive repeated observations over short time intervals such as multilevel modeling (Bolger & Laurenceau, 2013).

Intensive Longitudinal Research Methods to Study Daily Life

There are several intensive longitudinal research methods used to study everyday thoughts, feelings, physiology, activities, and behaviors under actual living conditions in daily life. For the purpose of this entry, we provide two exemplary research methods. The first example is the diary method (Bolger, Davis, & Rafaeli, 2003). In diary studies, individuals provide frequent reports on variables or constructs of interest on a regular basis, often combined with events and experiences that participants encounter in their daily lives. Data can be collected with the help of traditional paper-and-pencil methods or electronically via the internet or with mobile technologies. Diary methods allow studying dynamic processes outside the laboratory in real life settings and contexts. They tend to reduce the response bias due to retrospection, as diary methods strive for minimizing the time elapsed between experience and measurement of a variable of interest, causing an increase in ecological validity. Additionally, the explicit consideration of the relatedness of change processes to events and dynamics of daily life provides additional or even complementary information to that obtainable by more traditional longitudinal research designs. For example, daily diary studies may reveal that certain personality characteristics are relatively enduring, while others are more strongly related to situational determinants and events, and thus are more variable and fluctuating.

The second example is ambulatory assessment that refers to a broad category of increasingly digitalized methods of experience sampling, including classical self- and other-reports, physiological, and biological data, and observed behaviors (Trull & Ebner-Priemer, 2014). Ambulatory assessment is not necessarily longitudinal, but most research questions using ambulatory assessment involve the study of a certain phenomenon in daily life and across time. Owing to technological innovations such as portable devices, data can be collected actively and passively in real time or close to real time. Increasingly large amounts of psychological relevant data can be drawn using passive assessments of dynamic processes such as physiological parameters. Automating data collection allows studying very complex research questions, covering multiple domains of psychological functioning, but may also involve challenges for future research. For example, continuous measures of processes such as heart rate variability or GPS should be combined with self-report measures that are only assessed at a certain point in time or when a certain event occurs. Moreover, ambulatory assessment methods produce an intense amount of data, in fact leading to data analytical issues, challenging and stimulating the development of psychological theory as well quantitative methods of longitudinal research.

Integrating Developmental Change and Dynamic Processes

The measurement-burst design involves longitudinal assessments that are planned around closely spaced successive "bursts" of assessments, rather than widely spaced successions of single measurement occasions (Nesselroade, 1991). It combines features of intensive
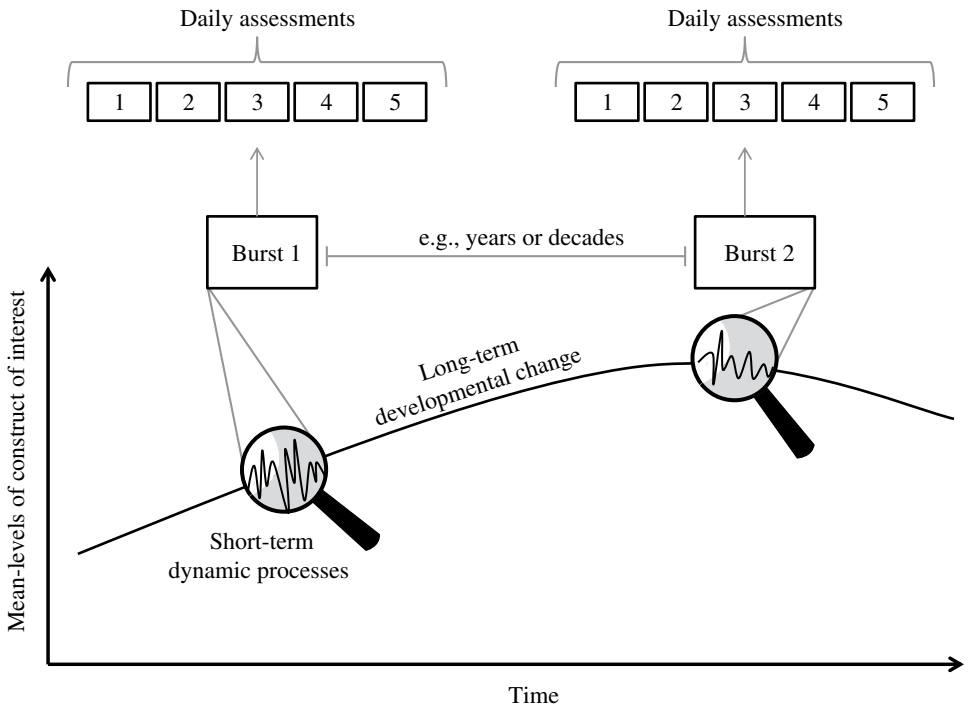
Figure 1 An illustration of a measurement-burst design.

short-term longitudinal methods such as diary methods with features of long-term longitudinal designs that are used for tracking individuals over relatively long time intervals (see Figure 1 for an illustration). This type of design provides researchers with the unique opportunity of modeling long-term developmental changes of personality traits over years in tandem with dynamic processes of personality expressions that can only be measured on a daily or momentary basis, such as regulative and self-evaluative processes or emotional states in a given situation (Sliwinski, 2008). Therefore, the measurement-burst design can be seen as a hybrid of the two broad types of longitudinal research designs in order to improve the detection of long-term change and short-term fluctuation and allow for simultaneous examination of both components into a single study. Within the logic of measurement-burst designs, both short-term fluctuations as well as long-term developmental changes are viewed as systematic sources of individual differences in development. Both sources of variability may be of important predictive value for outcomes of interest. For example, certain personality characteristics may carry different informative aspects with respect to a long-term perspective (e.g. people may differ in how their personality traits develop as they move from adolescence to early adulthood and beyond) and a short-term perspective (e.g. people may differ in how strong their personality state expressions fluctuate on a daily level). In that sense, implementing measurement-burst designs seems to carry special value when the constructs of interest might be affected by longitudinal processes at different time scales.

See Also

Personality Development
Personality Development Across the Lifespan
Personality Stability and Change over Time

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Person-Situation Interactions

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Person-Situation Interactions

Personality is defined via general tendencies of affect, behavior, cognition, and desire, also referred to as *traits*. Thus, traits are fairly abstract and removed from specific mental processes or behavior occurring in specific situations, also referred to as *states*. Nonetheless, traits are expected to predict momentary states, and states should show some evidence of consistency across different situations or time if an underlying stability-generating personality system is to be inferred. States, as manifestations of personality traits, always take place in specific situations (Fleeson & Jayawickreme, 2015), so we need to understand how personality and situations are linked. For example, Funder (2006) refers to a "personality triad" consisting of persons, behavior (including mental processes), and situations which are interwoven in complex ways. Any member of this triad could then be understood in terms of the other members. This is inspired by Lewin's formula $B = f(P, E)$ where momentary behavior B is a function of the momentary mental state of the person P and his/her actual environment E. Lewin understood the person and environment to be part of a common "field" so that they would need to be studied jointly. Later, Funder (2006) reconceptualized this Lewinian notion to $B = f(P, S)$ where behavior is a joint function of the person P and the situation S. He also concluded that $P = f(S, B)$ and $S = f(P, B)$ must hold if true interactions among P, B, and S are captured. However, understanding how persons – with their personality traits – and situations contribute to behavior and, more generally, how the variables of this personality triad are interrelated has been a contentious issue of personality and social psychology, sparking the *person-situation debate*. This debate broadly revolved around the question whether personality or situations represent the dominant predictors of behavior. One answer was that personality and situations *interacted* with each other – that is, to explain and understand behavior, we should not study persons and situations separately but attend to their conjoint effects (i.e. interactions). Later, psychologists sought to understand which *mechanisms and processes* constitute such person-situation interaction effects.

The Person-Situation Debate

What came to be known as the person-situation debate revolved around several issues that were supposedly shortcomings of personality and traits as concepts of scientific inquiry (see Fleeson & Noftle, 2009 for an overview). First, the moment-to-moment consistency of behavior has been deemed too low to warrant the concept of a stable trait (e.g. Hartshorne & May, 1928). Thus, the reasoning went that situations determine behavior. Second, traits did not seem to predict behavior too well (e.g. Mischel, 1968). Thus, the concept of "personality" was declared empty and useless. To defend the concepts of personality and traits, several strands of research showed that people are in many ways remarkably consistent and that traits exist, are meaningful, and can be deemed consequential for people's lives (Kenrick & Funder, 1988).

Among the responses to the person-situation debate were lines of research that strived to combine the person and the situation – that is, person-situation interactions – because neither on their own would be sufficient to explain, predict, and understand behavior. The first line, referred to as *interactional psychology*, was devoted to a statistical understanding of a person × situation interaction effect beyond main effects of persons and situations. The second line, here referred to as *person-situation transaction research*, emphasizes what it conceptually means if a person and a situation "interact." These two lines explicitly address the person-situation debate by acknowledging that both person and situation variables are important, but that they may be entangled in complex ways.

Interactional Psychology

Most of psychology treated the Lewinian formula as if behavior were an additive function of person and environment variables. This would mean that behavior is *independently* predicted by traits and situations to some extent. It is this notion of person-situation independence that creates the possibility to pit the magnitude of person and situation effects against each other. In contrast, Magnusson and Endler introduced an *interactional psychology* (Endler & Magnusson, 1976) with the main tenet that behavior is a multiplicative function of the interaction between traits and situations. Statistically, a significant and substantial interaction effect (beyond the main effects of traits and situations) would mean that effects of traits depend on situations or, vice versa, that effects of situations depend on traits: traits moderate situation effects, and situations moderate trait effects. Conceptually, this means that certain people respond to certain situations differently from others (or that certain situations elicit for certain people different responses than for others).

Early research interpreted interactions more in *statistical terms* as interactions in an ANOVA-type design with effects of persons, situations, and person × situation interactions. A concrete application is Endler and Hunt's (1966) S-R inventory: Using the example of anxiety, persons report how anxiety-inducing certain situations or stimuli (S) are and also record how likely or intense their anxious reactions or responses (R) to them would be. This creates a data structure where variance in anxious reactions can stem from the two main effects of persons (= individual differences in generally responding anxiously) and situations (= differences between situations in their general tendency to evoke anxious reactions) as well as the two-way interaction of person × situation (= unique

anxious reactions of specific persons to specific situations, beyond main effects). Typical results of such S-R inventories is that the variance of the person × situation interaction is quite sizable.

Other strands of research have also attended to person × situation interactions, such as educational (ATI; aptitude-by-treatment interactions), applied (TAT; Trait Activation Theory), clinical (diathesis-stress models), and behavior genetic literatures (gene-environment interactions). Particularly TAT may be seen as a modern spawn of interactional psychology because it posits that certain traits become activated only under certain situations which correspond to a significant interaction effect.

Person-Situation Transactions

The problem with the statistical view of person × situation interactions is that (a) B = f(P, E) cannot capture all the causal relations between persons, situations, and behavior and (b) the interaction term is conceptually blurry because it is all too often not clear what it means. The traditional ANOVA design models behavior as a dependent variable to be predicted from person and situation variables as independent variables. This could be seen as a one-sided approach because, as intended by Lewin, there are complex causal relations between persons, situations, and behavior. For example, Bandura captured them in his concept of causal or reciprocal determinism where persons, situations, and behaviors influence each other *bidirectionally* in all cases. More recent advances in personality psychology embody these principles, such as work on personality signatures and if-then patterns (Mischel & Shoda, 1995). Such approaches directly incorporate situations into the concept of a trait. Thus, a trait already denotes an interaction between the person and the situation because it is defined as an intra-individually stable pattern of "IF Situation X, THEN Response Y."

However, these approaches still do not address what exactly the interaction is and how it comes to be (i.e. how and why certain people are in certain situations and what they do to them). In other words, the mutual influence between persons and situations needs to be better understood. On a grand scale, there can be gene-environment transactions (Plomin et al., 1977). Gene-environment correlations can be passive (via parents an inherited genotype is correlated with the environment one is born into), evocative/reactive (genotype is correlated with certain reactions from others), and active (genotype is correlated with choosing and shaping certain environments). In contrast, gene-environment interactions occur when environmental effects on an outcome (e.g. delinquency) depend on the genotype and vice versa. Other researchers have focused on smaller scales: what people do to situations in their everyday lives (Ickes et al., 1997), which have been referred to as *situation management strategies* (Rauthmann & Sherman, 2016). Such strategies include maintenance (maintaining the situation as is), construal (uniquely perceiving or cognitively restructuring mental representations of the situation), evocation (usually unwillingly eliciting responses from others), selection (seeking or shunning certain situations), modification (actively changing an existing situation into something else), and creation (pro-actively generating an entirely new situation). The repeated utilization of such strategies may result in long-term developmental regulation and personality development (Caspi et al., 2005). To distinguish all of these mechanisms from statistical person × situation interactions, they are also referred to as *person-situation transactions* (Rauthmann & Sherman, 2016).

Summary: Meanings of "Person-Situation Interaction"

As summarized elsewhere (Lilienfeld et al., 2015; Olweus, 1977), a "person-situation interaction" can mean very different things, such as most commonly: (1) persons and situations both shape behavior; (2) relations between persons and situations are bidirectional (such that persons shape situations and situations shape persons); (3) persons and situations are interwoven in complex ways (which means that their effects on behavior cannot be separated properly); and (4) statistical effects of person variables depend on (i.e. are moderated by) situation variables and vice versa in the prediction of an outcome variable. Researchers should be aware of these meanings and ideally specify what exactly they mean.

Methodological-Statistical Considerations

To examine person × situation interactions or person-situation transactions, several methodological and statistical issues need to be taken into account. First, tracking person-situation transactions in the laboratory and in daily life requires intensive longitudinal data designs, such as experience sampling or ambulatory assessment. Second, large sample sizes are needed to reliably estimate robust person × situation interaction effects which can be relatively small in daily life (Sherman et al., 2015). Third, inherent in most research is the assumption that relations between persons and situations are linear. However, this need not be the case as effects can also be curvilinear so that non-linear interactions occur (see Schmitt et al., 2013). Lastly, the representativeness and/or comprehensiveness of persons, traits, situations, and behaviors sampled can influence whether and which interactions occur. Thus, great care must be taken to select appropriate variables and populations.

See Also

Experimental Approaches
Gene-environment Interaction
Personality Stability over Time
Size Effects in Personality Research

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Researcher Biases

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Introduction

Researcher bias refers to researchers' tendency of having a partial perspective, which favors certain population or opinions against the alternatives. It is generally considered undesirable for two reasons. First, most psychologists are committed to producing objective knowledge, which provides an accurate description of people's personalities. Bias distorts knowledge and gives us an inaccurate idea about personality. Second, most psychologists wish their knowledge to be ethical and beneficial to society, whereas biased knowledge – for example, the statement that a particular population has a problematic disposition – can serve as a potent basis of discrimination and harm.

Researcher biases are usually caused when researchers unwittingly bring their personal characteristic, life experience, socio-cultural background, particular academic value, and so on, into personality research and arrive at biased research findings. In some cases, researcher biases are intentionally produced, such as in fraud research, but this entry primarily focuses on unintentional or implicit biases, which are more common and can be more difficult to avoid. This entry first introduces a few common biases, and then analyzes where they come from, before concluding with recommendations as how to reduce researcher biases.

Common Researcher Biases

Researcher bias may take place at various stages of research: selecting research topic, choosing theoretical/conceptual framework, establishing hypothesis, operationalizing variables, sampling, collecting data, data processing, interpreting data, report writing, publishing, etc. As researchers enjoy the flexibility to make decisions at all these stages, they may at the same time introduce biases into research. For instance, by testing one particular hypothesis, a researcher can be excluding other possible explanations in a biased way. Owing to space limitations, this entry only discusses a number of common biases.

Sampling bias refers to selective inclusion of individuals in research design so that the sample fails to represent the entire population. In convenient sampling, the researcher recruits participants who are easily available, e.g. family members, friends and colleagues of the researcher, to make up the participant pool, which is likely to resemble the researcher in terms of culture, socio-economic status, values, and so on, rather than representing people across society. Random sampling is often applied to overcome sampling bias. For example, in order to study the personality traits of students from one university, a researcher might select all students whose student ID ends with 5. In this way, students enrolled in this university are randomly selected, so that they are likely to represent all students in this university.

Another bias occurs concerning which groups of people are studied. It has been pointed out that psychological research participants are too heavily representative of the "weird" population – people who are Western, educated, and from industrialized, rich, and democratic countries (Henrich, Heine, & Norenzayan, 2010). When knowledge derived from this biased group is applied to other groups, it can lead to the evaluation of the other groups as deviating from the norm or can even be problematic by implication.

In other cases, marginalized groups, such as women, ethical/cultural minorities, LGBTQ, and people with low socio-economic status, are included in psychological research. However, their apparent differences from the average population are sometimes interpreted to be inferior or abnormal. Here bias takes the form of interpretation. Data do not speak for themselves, or in other words, any evidence must be interpreted in order to make sense. This is why in empirical research papers the result section is followed by a discussion section, which sheds light on what the data mean. And when interpreting data, researchers might introduce stereotypes or preconceived notions and arrive at biased conclusions. Ignorance of the possibility of biased interpretation can contribute to a naïve notion of evidence-based practice, because rather than directly determine practical intervention, evidence must be interpreted first. For example, symptoms of maladaptation do not necessarily suggest maladaptive personality traits to be treated; the problem can be possibly caused by social environment or relationship.

One very well-known bias is confirmation bias, which refers to the researcher's tendency of looking for and interpreting information in a way that confirms his/her existing expectations or beliefs (Nickerson, 1998). For example, with the expectation that one participant has certain personality traits, a researcher can make selective observation and interpretation of that participant's behavior to confirm his/her expectation.

Another common cognitive bias is the fundamental attribution error. According to this notion, people tend to explain human behaviors in terms of the internal characteristics of the actor, such as personality, instead of social contexts or situations. The fundamental attribution error signifies a dividing line between personality psychology and social psychology, namely whether we attribute participants' behavior to their personality or to their social context.

Researcher bias should be distinguished from biases caused by participants, theory, method, or language. For example, participants might produce a socially desirable report about themselves and thus bias the research findings. The concept of sex, previously used to explain the male/female difference, has been distinguished from gender, which emphasizes the social construction of women/men instead of their biological basis. Many methods and tests, such as convenient sampling mentioned above, have inherent

bias as well (Podsakoff, MacKenzie, Lee, & Podsakoff, 2003). It is important for researchers to become familiar with these types of biases as well, because researchers are the ones responsible for choosing theory, language, method, or influencing participants' response.

Possible Sources of Researcher Biases

In order to reduce researcher biases, it is necessary to understand where these biases come from. Certain instances of biases occur at the individual level, caused by one researcher's individual interest, motivation, attitude, cognitive process, identity, etc. In this case, biases committed by one researcher can be effectively avoided or caught by others. The famous psychologist Francis Galton received criticism for insisting that genius is inherited, and his bias can be attributed to his own extraordinary talentedness and eminent family background.

At other times, bias can be collectively shared. As hinted above, there has been a long history in which psychological research discriminated against women, ethnic minorities (Gould, 1996) and people with certain sexual orientations (Herek, Kimmel, Amaro, & Melton, 1991). Just as anybody else, psychologists are influenced by dominant ideologies about health, morality, gender, politics, etc., and when caught off guard, psychologists can reproduce these ideologies in their research findings. It should be noted, though, that conducting objective research does not necessarily require psychologists to give up their stances, which is unrealistic. Instead, it requires psychologists to be aware of their stances and prevent them from unconsciously biasing research.

Biases can hide in popularly shared research assumptions. For instance, classical psychoanalysis has been criticized for its overemphasis on the irrational aspects of human mind, behaviorism for its neglect of consciousness, neuropsychology for locating the cause of human behavior in the brain while ignoring social context. Researchers tend to treat their core research assumptions for granted, but a comparison among various schools suggests that their theoretical assumptions are prone to bias.

Biases can be caused by the academic structure in which researchers work. For instance, the "weird" population problem discussed above occurs because most psychologists conduct research in Western universities and have the easiest access to the "weird" population. In other situations biases stem from disciplinary or academic culture or convention. For example, journals tend to publish positive experimental findings – findings that are statistically significant and support the initial hypothesis. This bias is also called file drawer effect, because findings that do not support the hypothesis are less welcomed by publishers and often end up in researchers' filing cabinets. However, positive findings are not necessarily more valuable than negative findings, and the accumulation of file drawer effect can lead to serious misunderstanding of the topic being investigated.

Finally, financial ties may also create bias in research. For example, pharmaceutical companies can selectively support research projects that favor the production of lucrative drugs. Although most psychologists attempt to identify and avoid conflict of interest, sometimes they unintentionally take the stance of their employers. For example, in the famous Hawthorne studies, Mayo attributed labor conflict to workers' irrationality rather than the exploitive factory management and harsh work environment. Even with good intentions,

psychological research can be appropriated to advance the interest of the industry. In the early twentieth century, as employers were legally prevented from inquiring into job applicants' involvement with labor unions, they hired psychologists to screen out potentially disobedient job applicants with personality tests (Gibby & Zickar, 2008).

How to Reduce Researcher Biases

As mentioned above, researcher bias often occurs unintentionally or unconsciously; researchers commit bias precisely because they are not aware of how they are being biased. On other occasions, certain biases are shared across society or culture, so that researchers may take biased opinions for granted. Thus, bias is a ubiquitous phenomenon; it can be reduced but never fully eliminated. What principles can help personality psychologists to reduce researcher bias?

The prerequisite of reducing bias is that researchers recognize the undesirability of bias and are motivated to reduce it. This is easier said than done. It happens often that researchers believe their hypotheses are correct, or want their studies to be efficiently done and published, so that they manipulate experimental procedure, tweak data, and select from alternative theories, etc., to arrive at desired conclusions. Under pressure from tenure promotion or graduation requirements, researchers may hope the potential weakness in their quickly finished works will not be detected by academic peers. Self-criticism is painful, and biases may exist in research because researchers are less motivated to identify and overcome them.

Throughout history, psychologists have made persistent efforts to reduce biases through various means. Methods of controlling biases – such as operational definition and random sampling – are included in almost every introductory textbook and university training program. Double blind design, one of the most important experimental procedures, requires the experimenter to be unaware of which group the participants belong to, so that he/she cannot give away hints and influence the participants' response. Peer review, the standard publication procedure requiring scholarly submissions to be reviewed by academic peers before publishing, can be effective in identifying certain researcher biases.

However, these standardized methods cannot fully eliminate researcher biases. One common notion in popular culture is that scientific procedures are bias-proof, which is not true. For instance, peer review procedure is based on the assumption that one individual researcher's bias can be detected by another researcher. As manifest in the history of psychologists' discrimination against marginalized groups, when a certain bias is widely shared in society, the reviewer and author can both take the biased opinions for granted. In order to overcome this problem, researchers need to make persistent and creative efforts in addition to following the standard research design requirements against bias. In recent decades, psychologists have been urged to practice reflexivity – critical reflection on how one's experience, values, attitude, identity, social context, financial support, etc., may exert influence on psychological research (Finlay & Gough, 2003). Because each individual researcher, research design, and research context is different from another, researchers must improvise reflexivity in each case.

Cognitive and social psychological research has accumulated a wealth of findings on how human judgments can be biased, and psychologists themselves, as human beings after all, are not necessarily exempted from these biases in their research activities. If we bear

this lesson in mind, we can apply cognitive and social psychological findings to refine our research process. In social psychology there is a better-than-average effect, according to which most people think they are better than average of the rest of the population, which is statistically impossible. We can borrow this wisdom to inform our assessment of researcher bias – we are more biased than we are aware of. Or put another way, psychological knowledge, either produced by oneself or others, is less objective than it appears to be. Objectivity, the goal by which which most researchers attempt to reduce bias, can be approximated but never fully achieved.

See Also

Experimental Approaches
Replication Research
Theoretical and Methodological Issues in Personality Research, General Concerns and Considerations

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Unconscious Processes

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Conceptualization

Conceptualization of the psychological unconscious, comprising of mental states and processes that are consciously inaccessible or unavailable, traces back to Freudian interpretations of the preconscious and unconscious minds as functioning outside of awareness or control. Although current understandings of unconscious processes in scientific psychology have moved beyond Freud's psychoanalytic framework, contemporary research continues to redefine the nature and scope of the unconscious mind, resulting in two distinct research paradigms. Historically, cognitive psychologists have focused on *subliminal* information processing, in which stimuli are presented below the threshold of consciousness, to study how, and to what extent, the unconscious mind is influenced by stimuli of which the perceiver is not consciously aware. Conversely, social and personality psychologists tend to focus on the individual's lack of awareness of the internal mental processes that influence thought and behavior. The key distinction is that the former domain is concerned with the influence of stimuli presented below the threshold of conscious awareness and the latter domain is concerned with the consequences of being unaware of the *effects* of stimuli, which can be presented subliminally or *supraliminally* (stimuli that can be consciously attended to) (see Bargh & Chartrand, 2000). Much of the research on individual differences in non-conscious processes has been conceptualized from this latter perspective, which draws heavily from methodological techniques that assess both temporary and chronic forms of concept accessibility.

Much of the research on the unconscious mind relies on the notion of concept accessibility, whereby people process objects and events within an existing mental framework, or *schema,* that can be activated outside of conscious awareness. *Accessibility* refers to the ease with which a schema is brought to mind and used to make judgments. That is, different people can perceive the world in different ways based on different mental models of the world that can stem from prior experiences or current motivational states. Thus, the same

situation or stimulus can result in different affective, cognitive, and behavioral outcomes as a function of individual differences in information processing that can occur outside of conscious awareness. Because frequently invoked information is thought to strengthen connections to related concepts in memory, exposure to repetitive or more salient stimuli can also result in their *chronic* or trait-like accessibility over time.

Techniques of Assessment

Priming techniques, in which certain information is activated in the mind, have been the dominant methodology used to assess how unconscious mental processes account for the effects of various stimuli on affect, cognition, and behavior. These techniques rely on differences in speed of participant responses (reaction times), target judgments, and behavioral responses to capture individual differences in information processing (e.g. rejection sensitivity).

Psychological research on automaticity has revealed that individual differences in knowledge structures that are chronically accessible in memory, due to past experiences, can differentially impact the ways in which people respond to temporarily activated concepts. For instance, research on rejection sensitivity – an individual difference variable that captures chronic tendencies to expect, perceive, and overreact to social rejection – has shown that temporary exposure to relationship-relevant stimuli, such as an upcoming anniversary, predicts partner judgments (e.g. perceptions that one's partner is faithful) among individuals with higher levels of rejection sensitivity.

Among the most common techniques used in priming and automaticity research are conceptual priming, mindset priming, and sequential priming methods. Conceptual priming techniques refer to the activation of a particular mental representation in one context that influences responses in a subsequent, unrelated context. For example, the scrambled sentence test – in which participants have to construct a series of four-word sentences when given five word options in which one of the words, unbeknownst to the participant, constitutes the prime – has been used to temporarily activate concepts such as "patience" or "rudeness" outside of awareness. In one study, participants who were primed with the concept of patience were significantly less likely to interrupt an experimenter compared to participants who were primed with the concept of rudeness. The related technique of mindset priming has been used to explore individual differences in goal-directed cognitions. In this paradigm, participants may read a scenario describing someone who is displaying a certain trait, such as hostility, and the primed trait – a mindset prime – which can subsequently influence how participants perceive others in an ostensibly unrelated impression formation task.

The sequential priming technique has been used to test relatively stable relationships between concepts to measure individual differences in their chronic accessibility. For instance, a lexical decision task, in which participants decide whether or not a target letter string is a word or a non-word, can be used to assess response latencies for target concepts (e.g. doctor) following relevant (e.g. nurse) and irrelevant (e.g. toast) primes presented subliminally. Shorter latencies are posited to reflect automatic associations in the unconscious mind – in this case, between the concept of nurse and doctor. Another sequential priming task, the Affect Misattribution Procedure (AMP), has been used to

assess individual differences in unconscious, or *implicit*, attitudes. In this task, participants are asked to rate the pleasantness of various abstract patterns, such as Chinese characters, following a stimulus prime. In an experiment on alcohol attitudes and consumption, the pleasantness ratings of pictographs following alcohol-related images (compared to water-related images) were positively associated with higher rates of self-reported alcohol consumption (Payne, Govorun, & Arbuckle, 2008).

What these techniques have in common is the activation of mental representations that have residual effects on later tasks or responses, an influence that participants may be unlikely or unable to consciously recognize and report. Consequently, these residual effects are considered to be unconscious or implicit processes because people lack awareness of and intentionality behind the cause of their actions, which are the two primary features that have been used to distinguish between conscious and unconscious processes.

One of the most popular techniques for assessing implicit attitudes is the Implicit Association Test (IAT; Greenwald, McGhee, & Schwartz, 1998). In the traditional IAT, stimulus words or images are presented sequentially that represent two target categories (e.g. self vs. others) that are paired with bipolar attributes (e.g. good vs. bad) using the same two response keys. Faster responses on the IAT are thought to reflect stronger automatic associations between paired concepts (e.g. "self" and "good") compared to an alternative pairing (e.g. "self" and "bad"). The IAT has been used to quantify the strength of different associations that have developed over time through repeated exposure and are presumed to reflect relatively stable differences in individual attitudes. For example, studies using the Race-IAT, which pairs positive and negative attributes with the racial categories Black and White, has shown that a majority of White participants in the United States demonstrate an implicit preference for Whites over Blacks, whereas roughly half of Black participants show an implicit preference for Blacks over Whites. Implicit measures such as the Race-IAT have been used extensively to assess a wide range of attitudes that individuals may be unable or unwilling to report, due to a lack of insight or concerns about appearing prejudiced, or conflicting conscious (self-reported) egalitarian attitudes.

The decision to use priming techniques versus a double categorization task, such as the IAT, when investigating individual differences depends on the outcome of interest. For instance, whereas priming techniques have been shown to be stronger predictors of target judgments of a single exemplar of a given category (e.g. a single Black celebrity), the IAT is a stronger predictor of evaluations made at the category level (e.g. stereotypes of Black people). Thus, individual differences in racial or ethnic group preferences (e.g. Japanese Americans vs. Korean Americans) may be better captured using the IAT, whereas judgments of individual members of a particular racial or ethnic group may be better captured using a sequential priming task.

Methodological Issues

Studies that use priming methods and that include serial tasks should be carefully constructed to conceal the relation between stimulus prime and the task by, for instance, using different rooms for administering different tasks or using multiple experimenters, when possible. When stimulus primes can be consciously detected (as is the case in many

of the aforementioned priming tasks), it is critical to engage in a comprehensive debriefing procedure, commonly referred to as a "funneled debriefing," to ensure that participants are not aware of the relation between the priming task and the particular outcome of interest. In this procedure, researchers may ask participants a series of open-ended questions to assess participants' beliefs about the purpose of the experiment, if they noticed particular relations between the tasks, and if they were aware of particular strategies they used when completing the tasks (see Bargh & Chartrand, 2000).

Subliminal priming methods can be used to help circumvent socially desirable responding or the influence of other demand characteristics that may arise through the use of supraliminal priming techniques. Moreover, demonstrating an effect using stimuli presented at speeds too fast to consciously detect increases confidence that unconscious processes are driving the observed effect. Additionally, pattern masks presented after subliminally presented stimuli can further mitigate conscious detection of stimulus primes.

Additional support for the operation of unconscious processes can be established through the use of a cognitive load manipulation in which participants are given a concurrent task to complete that relies on working memory. Generally, interference from cognitive load is expected for conscious processes but not for unconscious processes. If response latencies are unaffected by a given load induction (e.g. remembering an eight-digit number while performing a concurrent task) unconscious processing can be better inferred because substantial cognitive resources were not required for completion of the task.

Finally, in some cases, effects of subliminal primes may be weaker or more difficult to detect compared to supraliminal primes. The duration and intensity of subliminally presented stimuli can be increased to better detect or strengthen an observed effect, however, awareness checks should be conducted at the end of an experiment in order to ensure that participants are unaware of the particular features of the prime presented.

See Also

Cognitive Methods in Personality Research
Implicit Motives, Assessment of
Self-Consciousness, Assessment of

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Cognitive Methods in Personality Research

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Mental abilities and cognitive processes are key competences that are needed to meet the challenges of job and family demands, education and advanced training, societal expectations, and to manage the demands of everyday life. However, individuals differ with respect to cognitive processes and performance (cf. Matthews, 2009). Therefore, it is of interest for personality research to study how, when, and why individuals differ in cognitive processes and performance. To be more specific, individuals who are interested in reading activities might read more often than individuals who do not like books and newspapers, resulting in different reading skills. On the between-subjects level, previous research found associations between cognitive abilities and the Big Five personality traits, mainly for openness to experience, neuroticism, and conscientiousness (e.g. Ackerman & Heggestad, 1997; Luchetti, Terracciano, Stephan, & Sutin, 2016). Openness and conscientiousness are usually positively related to cognitive functioning, whereas neuroticism is negatively associated with cognitive functioning. Particularly, individuals who are more open to experience will be predisposed to think more creatively, to seek new ideas, and to engage actively in cognitively stimulating activities across different life domains. Consequently, an intellectual active lifestyle will positively influence the maintenance of higher cognitive functioning. Likewise, conscientious individuals may engage in various health behaviors that are protective against age-related changes in the brain. On the contrary, neurotic individuals are characteristically more anxious and prone to intrusive thinking as well as distraction, which could impede their ability to focus on a cognitive performance task (cf. Graham & Lachman, 2012). However, little is known about the mechanisms that underlie the link between cognitive processes and personality traits. Future research needs to shed light on the underlying associations between cognition and personality.

The primary aim of using cognitive methods in personality research is to examine the processes that transpire in real-time transactions with the environment. In contrast, self- and observer-reports seek to capture generalizations that individuals make about

themselves and others. Cognitive and self-report methods may or may not correspond with each other. For example, research has shown that Implicit Association Tests (IATs) predicted spontaneous Big Five behavior, but explicit measures did not. In contrast, explicit measures, but not IATs, were related to self-rating of behavior (Steffens & Schulze-König, 2006). Furthermore, traditional personality research methods such as self-reports fail to capture many of the cognitive processes that transpire when individuals are exposed to stimuli, because individuals do not have conscious access to how they process stimuli in real time. Thus, individuals are not able to report on these processes (Robinson, 2004). Moreover, self-reports rely on subjectivity and retrospection. By contrast, cognitive processes can be measured both in an objective (e.g. cognitive tests) and subjective way (e.g. self-reports of cognitive processes). Though self-reports measures of personality show predictive validity for important life outcomes (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007), there are important reasons to use cognitive measures in personality research. Researchers commonly discuss personality traits as constellations of thoughts, feelings, and behaviors (cf. Roberts, 2009). However, most research on personality traits has focused solely on how they relate to behaviors and emotions. As such, there is a need for additional research on the cognitive signature of personality traits. Investigations along this front will be inherently valuable not only for advancing the scientific understanding of given traits, but also for helping to explain the reasons why personality traits appear to hold such consistent effects on important life outcomes. In other words, personality research using cognitive methods can elucidate the mechanisms linking personality traits to well-being and success across life domains.

Defining Cognitive Processes

For this chapter, five cognitive processes that are important for personality research are discussed (cf. Robinson, 2007): (1) *Accessibility* is defined by the speed or ease with which an individual can place an object (e.g. cat) in a relevant category (e.g. animal), it is a pre-activation of a concept. (2) *Attention* is defined as the selective narrowing or focusing of awareness to specific stimuli/information. (3) *Executive functions* is an umbrella term for the complex cognitive processes that serve goal-directed behaviors by updating, shifting, and inhibiting information. (4) *Implicit self-attitudes* are defined as subliminal attitudes and self-concepts about the self. They are unconscious but manifested in behavior. (5) *Semantic priming* is defined as using a semantic stimulus to sensitize the accessibility to a later presentation of the same or a similar stimulus. The term semantics refers to established knowledge about facts, objects, and word meanings. Semantic memory networks organize memory material, but they are invisible and unconscious.

Measuring Cognitive Processes

Cognitive processes can be measured implicitly or explicitly. In implicit methods, it is not obvious what is being measured. In contrast, it is to some extent obvious what is being measured in explicit methods. In addition, cognitive methods are typically used to assess

(1) the *maximal performance* of an individual or (2) *typical cognitive processes and functioning* in daily life. Maximal performance can be measured using *power tasks* that increase in difficulty or *speed tasks* that need to be executed as fast and accurately as possible. In the next section, cognitive task examples of measuring selected personality aspects are given. However, it is important to note that these tasks could be employed to study a wide array of personality traits.

Accessibility can be assessed using a choice reaction time task in which individuals are asked to decide whether a word belongs to one category or another as fast and accurately as possible. The speed of categorizing words is taken as an indicator of the accessibility of the targeted construct. Thus, an individual will be fast when the targeted construct is more readily accessible. By contrast, inaccessible constructs would produce marked difficulties with the task and result in slower speed. For example, accessibility can be linked to the individual differences in blame. In the blame categorization task, individuals are asked to classify words as blameworthy or not as fast and accurately as possible. Previous research has shown that an individual who frequently assigns blame in everyday life is relatively quick at categorizing blameworthy words as compared to an individual who does not frequently assign blame in everyday life (Meier & Robinson, 2004).

Selective attention tasks are used to investigate individual differences in traits, such as anxiety and threat. For example, two words are simultaneously presented, one being threatening in nature (e.g. spider), and one being non-threatening in nature (e.g. chair). Individuals are told to attend to the words generally, and after some delay, the words disappear. Then, a spatial probe replaces one of the two words, simply requiring detection (e.g. "hit the space bar as soon as you detect X"). Previous research demonstrated that if individuals react faster to the spatial probe when it occurs in the location of threatening words, then the individual was preferentially attending to them. This means covert attention to threatening or nonthreatening words can be detected (cf. Robinson, 2007).

Executive functions are typically assessed with paradigms such as the Stroop task (Stroop, 1992) in which individuals are asked to provide the font color of the word displayed on the screen. This becomes more difficult when the text of the word conflicts with the font color (e.g. the word "green" written in blue) – or when the word is of greater personal relevance. In other words, when the word means something to the viewer (e.g. the viewer's name, a central personal characteristic), it can affect the viewer's attention and shortly distract him or her from the color-naming task. For example, executive functions can be linked to individual differences in trait anxiety. Indeed, previous research has found that individuals high on trait anxiety show a greater attentional bias toward anxiety-related words such as criticism compared to those individuals low on trait anxiety (cf. Robinson & Neighbors, 2006).

Implicit self-attitudes are typically assessed with two procedures, namely the alphabetic letter evaluations and the Implicit Association Test (Greenwald, McGhee, & Schwartz, 1998). The underlying idea of the first procedure is that individuals with positive attitudes toward the self will prefer the letters which appear in their names. The IAT consists of two choice reaction time distinctions. This can be illustrated briefly by an example measuring self-esteem (Greenwald & Farnham, 2000): One choice reaction time distinction refers to the distinction between self (e.g. the word *me*) and other (e.g. the word *them*), and one refers to the distinction between pleasant (e.g. the word *holidays*) and unpleasant (e.g. the

word *pain*). Individuals are asked to perform two combined blocks. In the first block, self and pleasant words are associated with one response key; similarly, other and unpleasant words are associated with one response key. In the second block, these mappings are reversed. The difference between the speed in the self or pleasant block and the self or unpleasant block is then defined as the IAT self-esteem (higher scores indicate higher levels of implicit self-esteem).

Semantic priming is typically assessed with the primed lexical decision task. Individuals are told to categorize letter strings as words or non-words. Individuals are briefly flashed with a prime word shortly before the presentation of the target letter strings. Lexical decisions are faster, when primes and targets are related (e.g. emotion – anger) versus unrelated (food – anger). Regarding attachment theory, stress-related primes (e.g., death) can activate proximity-seeking thoughts (e.g., love) in secure and anxious, but not in avoidant individuals (Mikulincer, Birnbaum, Woddis, & Nachmias, 2000).

Integrating of Personality and Cognitive Processes

The use of cognitive methods has considerable value to understand individual differences in personality processes and traits. However, it is unlikely that any cognitive measure can entirely tap a personality trait, because cognitive processes are dynamic in nature. In contrast, personality traits are relatively stable across various situations and contexts. Therefore, it is important to distinguish between micro-levels (e.g. milliseconds) and macro-levels (e.g. working memory performance) of cognitive psychology. Looking at the micro-level may provide valuable insights into personality states, whereas looking at the macro-level may provide valuable insights into personality traits. Likewise, it is important to consider reliability and validity when choosing one's cognitive method for a specific research question in personality psychology. The use of cognitive methods makes a unique contribution to personality research, for example when (1) it comes to potential cognitive mechanisms that are involved in trait-outcome relations; (2) important information cannot be examined by self-reports or behavior observations; and (3) cognitive processes may act as a moderator of trait-outcome relations. With regard to personality research studying individual differences in cognitive processes, it may be useful to widen the scope of investigation by taking third variables such as intellectual engagement or interests into account. It might be that such variables act as mediators or moderators of the relationship between cognition and personality. For example, individuals who enjoy intellectually demanding activities, which involve abstract thinking and problem solving as well as reading, may be more open and show higher scores in problem-solving tasks. Thus, it may be possible that intellectual engagement mediates the relationship between openness and problem-solving abilities.

Using cognitive methods in personality research certainly promotes a greater integration of cognitive and personality psychology where both areas can benefit from. For personality psychology, the traditional methods repertoire of self-reports and behavioral observations is expanded by cognitive methods. For cognitive psychology, a better understanding of personality differences in cognitive performance can help to develop cognitive trainings and interventions based on these personality differences.

See Also

Abilities, General Features and Methodological Issues
Cognitive-Behavioral and Cognitive–Self-report Assessment Techniques
Implicit Motives, Assessment of
Reliability, Issues of
Validity, Issues of

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Experimental Approaches

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Defining the Experimental Approach

Researchers conduct an experiment by examining how a manipulation (*independent variable*; *IV*, predictor variables, explanatory variables) affects certain outcomes (*dependent variable*; *DV*) in a controlled setting. By accounting for the effects of external factors that are not relevant to the association under investigation, researchers are able to infer a causal relation between the independent and dependent variables. In contrast, observational studies only allow researchers to infer non-directional associations due to the lack of control over extraneous variables.

Experimental Design

Experiments involve one or more levels of the independent variable, called e*xperimental conditions,* and a *control condition*, which provides a basis for comparison with the experimental manipulation. Some researchers also investigate the combined effects of multiple independent variables through a *factorial design*, in which the dependent variable is measured at all possible combinations of the different levels of the independent variables. To illustrate, consider a study of the combined effects of a stressor and caffeine on participants' cortisol levels; this would involve a 2X2 factorial design with four conditions involving either caffeine or a placebo and a stressful or neutral task.

Experimental designs can also be divided into between-subjects and within-subjects experiments. Participants in between-subjects experiments are randomly assigned to an experimental or control condition, while participants in within-subject experiments receive all levels of the independent variable, including the control condition. A between-subjects design reduces the possibility of participant bias, as participants are unaware of the other experimental conditions. When participants are aware of the experimental

conditions, as in the case of within-subject experiments, they may alter their behaviors consciously or unconsciously, resulting in demand characteristics. However, within-subjects experiments ensure that there are no pre-existing individual differences between the experimental and control groups that could affect the study findings. In addition, fewer participants are needed for a within-subjects study, as the participants do not need to be divided into groups.

Experimental Control

To rule out alternative explanations for the observed effects in an experiment, researchers control for extraneous variables that could affect the study outcome. Factors that randomly affect the measure outcomes, such as participant mood, are sources of random error. These factors increase the variability of the data, but do not influence the overall relation between the variables. If a factor varies systematically with both the independent and dependent variables, it is a confounding variable that must be controlled through the experimental design or during statistical analysis in order to isolate the effect of the independent variable. For example, one possible confound in the previously mentioned study on the effects of a stressor on cortisol levels would be the time of day, as cortisol levels vary diurnally. To control for this effect, researchers could conduct experiments at the same time of day.

Different tactics that researchers employ to reduce confounds include random assignment to condition, standardization of the study procedure, counterbalancing, and a well-designed control condition. Participants are randomly assigned to their conditions to reduce systematic differences between the characteristics of the participants in different groups. Thus, differences between the groups prior to the experimental manipulation are due to chance and differences following the manipulation can be attributed to the independent variable with greater confidence. The most straightforward method of random assignment is simple randomization, in which each participant is randomly assigned to a group, often through a random number generator. If researchers wish to have greater control over the composition of the different groups, they may use block randomization, in which participants are separated into groups, or "blocks," based on certain characteristics that the researchers wish to keep consistent between the conditions, such as gender. Participants in these blocks are assigned such that there are a certain number from each block in each condition.

Additionally, researchers standardize the study procedure by providing the same experience for all participants so that there is no meaningful variance in the manner in which the data is collected. Participants in the control group must be treated as equally as possible to those in the experimental group(s), with the exception of the factor of interest (IV), to ensure that the findings cannot be attributed to unrelated aspects of the manipulation. To prevent the order of the study tasks from affecting the study findings, researchers are advised to *counterbalance* or randomize the task order. If it is not possible to control for certain confounds through the experimental design (e.g. age or gender), researchers may statistically control for them by measuring the confounds during the experiment and then including them as covariates during data analysis.

Reliability and Validity

In addition to isolating the relation between variables in a study, researchers must also determine whether these variables are accurate and generalizable representations of the constructs that they are attempting to measure. The measured variables in a study are used as indicators of unobserved latent constructs, such as extraversion or self-esteem. In order to test the degree to which measured variables reflect their intended latent constructs, researchers assess the reliability (see Reliability, Issues of) and validity (see Validity, Issues of) of measures. Reliability refers to the extent to which a measure yields consistent and stable results provided that the underlying construct does not change, while validity refers to the degree that a measure captures the construct that it was intended to measure. Additionally, the validity of a study as a whole indicates how well the study examines the relation between the latent constructs. Internal validity is the confidence that a study's findings were caused by the experimental manipulation, ruling out other possible explanations. The use of experimental control increases the internal validity of a study. External validity is the generalizability of a study's findings to a larger population in a real-world environment. To increase external validity, the study sample should ideally be a random sample of the population that the researchers wish to generalize to so that the characteristics of the study sample do not differ substantially from the characteristics of the target population.

Ensuring the Integrity of the Experimental Manipulation

In some experimental designs, the independent variable is a construct that is manipulated indirectly, such as emotional state. To make sure that the independent variable is successfully manipulated in an experiment, researchers perform manipulation checks. These can take the form of a direct question at the end of experiment (e.g. "To what extent did you find the task stressful?"), a self-reported questionnaire that examines one's state before and after the manipulation, or changes in physiological measures, such as heart rate or cortisol. Manipulation checks are particularly useful for providing possible explanations when findings do not emerge as expected. If a manipulation check indicates that the independent variable was successfully manipulated, but the changes in dependent variable are not in line with expectations, researchers can infer that there is no causal relation in the hypothesized direction. However, if the manipulation check is not successful, researchers may revise the experimental manipulation to test the hypothesis more effectively in future studies.

Quasi-experiments

Quasi-experiments differ from experiments in that participants are not randomly assigned to conditions. This method is easier to implement than experiments, especially in intervention research, as it makes use of pre-existing groups within the sample. Two major types of quasi-experimental designs include non-equivalent groups and regression-discontinuity. A non-equivalent groups design involves researchers assigning intact groups, such as neighborhoods with similar demographics or classrooms, into different conditions (e.g. testing an intervention

in two schools, where one is the control group), while a regression-discontinuity design involves researchers assigning participants to groups on the basis of a cut-off score measured prior to the intervention (e.g. testing an intervention for children who report high risk for psychopathology). Quasi-experiments are used when it is impossible or highly inconvenient to randomly separate participants into groups. For example, when studying the effects of a manipulation on drug users, it would be unethical to randomly assign participants to use harmful drugs. Since participants are not randomly assigned to their condition, quasi-experiments have lower internal validity, as there may be systematic differences between the experimental and control group prior to the manipulation. Due to the possible influence of confounding variables, identifying a causal link between the independent and dependent variables is not possible.

Experiments in Personality Research

Personality researchers use an experimental approach to examine how personality traits (also known as person variables), the consistent characteristics of one's moods, thoughts and actions, interact with contextual factors and experimental manipulations to affect participants' current state. For instance, one study asked participants to report on their personality traits and randomly assigned them to conditions that induced either positive, negative, or neutral affect, measuring their susceptibility to these emotional states (Larsen & Ketelaar, 1991). The findings revealed a link between extraversion and susceptibility to positive affect as well as between neuroticism and susceptibility to negative affect. While this study randomly assigned participants to conditions designed to affect their current states, researchers may also use a quasi-experimental method to separate participants into conditions based on their levels of a personality trait, such as comparing the effects of a manipulation on individuals who report high or low aggression.

Analysis of Experimental Data

Researchers analyze experimental data by looking at differences between the means of the experimental and control groups. Certain statistical tests, such as *t*-tests and *F*-tests, reveal the significance of differences between conditions based on the resulting *p*-value, a measure of the possibility that the study findings would occur by chance. If there is less than a 5% possibility that the findings would randomly occur (i.e. $p < 0.05$), the finding is considered to be statistically significant. It is also important to understand the magnitude of group differences by examining their effect size, commonly measured through Cohen's *d* (Sullivan & Feinn, 2012). Researchers are advised to report on the size and consistency of effects in addition to significance, particularly as statistical significance varies as a function of sample size.

When interpreting the findings of experimental data, researchers must also consider their generalizability, which is affected by the limitations of the sample as well as the artificial nature of the experimental setting and manipulation. Further, since many studies examine personality traits through the lens of a specific task, the findings cannot be generalized to all situations and replication (see Replication Research) is needed to determine the external validity of the findings.

Strengths and Limitations

Well-designed experimental studies are higher in internal validity than observational research, which allows researchers to draw strong causal inferences from their findings through the use of control, random sampling, and random assignment to condition. These inferences are particularly important in building scientific models in personality research, enabling researchers to refine theories by disconfirming alternative explanations.

However, experiments can be difficult to administer, as they require rigorous planning. Additionally, the findings from experiments may not be generalizeable outside of a laboratory setting. Participants may act unnaturally because they are aware of being observed, which is referred to as participant reactivity, or may display demand characteristics, modifying their behavior based on their assumptions of the experiment's expected outcomes. Furthermore, the method may lack ecological validity if the manipulation strays too far from possible real-world situations. Despite these limitations, the experimental approach allows personality researchers to test existing theories to understand individual differences as well as general central tendencies.

See Also

Longitudinal Research
Meta-analysis in Personality Research
Researcher Biases

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Historiometry

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Brief Overview

Historiometry, or historiometrics, is the use of statistical analyses to examine human behavior through the lens of historical individuals. According to Simonton (2015), it was Frederick A.Woods who first coined the term in 1909, saying that historiometry is the group of investigations where "the facts of history of a personal nature have been subjected to a statistical analysis by some more or less objective method." A more precise definition, however, was drafted by Simonton in 1990: "Historiometrics is a scientific discipline in which nomothetic hypotheses about human behavior are tested by applying quantitative analyses to data concerning historical individuals."

This definition is composed of three key elements: the nomothetic hypotheses, the quantitative analyses, and historic individuals. A nomothetic hypothesis is one in which specifics have been removed in an effort to search for general laws and traits where the research produces statistically significant results. In the case of historiometrics, the results take the form of a statistical association such as a correlation coefficient and allow the researcher to create predictions about people in general.

The second element of historiometric research is quantitative analysis. In order to achieve this, the variables being examined must be quantified on some numerical scale and directly address the hypothesis. By its very nature, quantitative analysis looks at variables to help establish relationships between them and allows for a generalized finding, which is precisely what historiometric research is attempting to do. The nomothetic hypotheses provides the starting point for the research, and the quantitative analysis provides the statistical results that are either a confirmation or a falsification of the nomothetic hypothesis.

Another important element of Simonton's definition is the use of historic individuals as the sample of choice for the research. Historic individuals are those who have left a mark on civilization. They may have made a name for themselves by being leaders, geniuses, exceptional creators, or notable talents. Simonton (1999) referred to this type of subject as

"significant samples." These significant samples may provide opportunity to demonstrate the generalizability of findings from traditional methods and samples. They may also be used because they are representative of the extreme upper end of the normal distribution of human traits.

Historiometry tries to identify the characteristics that enable these exemplars to achieve and become timelessly impactful.

It is important to note that "historic individuals" does not actually mean limited to specific individuals. Events, products, military decisions, or even aggregates of historical individuals (referred to as generations) may be the sample focused upon for this type of research. Whatever the sample, all personal details are stripped including the individuals' names. A figure that is included in the sample will simply be identified as a number, rather than a person, allowing the famous to remain anonymous. Because of this, researchers are able to use living subjects with a contemporary application, rather than just subjects from past eras. This allows for a maximum amount of cultural and historical variability, with a larger probability for statistically significant universal laws and traits.

In order for this definition of historiometry to be useful, however, there are two key assumptions that must be made. First, an historical person matters. That is to say, one individual can and does make a difference, having a crucial, causal role in events. This philosophy is often associated with the great person theory of history, which dates back to ancient philosophers such as Plutarch, and deals with the notion that great people do not ride the waves, but are instead "a force that makes new waves" (Simonton, 2015, p. 185).

The second assumption is that history repeats itself in a regular enough pattern that you can create broad generalizations that have been stripped of their historic particulars. This goes along with philosophers who believe that history is a series of events that create a pattern transcending nations, time, and civilizations. Both of these assumptions are independent of each other; without either of them, historiometric research would not be able to maintain its nomothetic, generalized approach and results. Consequently, historiometry operates on the ideas that laws exist to explain how individuals can leave a mark on history, and that the individual's attributes, thoughts, and traits do contribute to collective history.

History

Historiometry as a method was first named and defined by Frederick A. Woods in 1909 when he created a bibliography that listed historiometric researchers, starting with Francis Galton's 1869 study *Hereditary Genius: An Inquiry into Its Laws and Consequences*, which is most notable for being the first historiometric inquiry to apply the Pearson product-moment correlation coefficient. Woods also wrote several historiometric studies himself, the first in 1906 when he wrote a study called *Mental and Moral Heredity in Royalty: A Study in History and Psychology*. In 1911 he wrote *Historiometry as an Exact Science*, where he wrote about his belief that historiometry would "solve" fundamental questions of history, such as why nations rise and fall, and what creates a genius leader. Finally, in 1913, he wrote his last study, *The Influence of Monarchs: Steps in a New Science of History*, where he contended

that personal qualities of the head of state have definite repercussions for the welfare of the nation as a whole.

Simonton later made his own list of notable historiometric research, including a study that Woods had missed, and thus failed to include in his 1909 bibliography, as well as studies which have occurred since Woods was active. According to Simonton, the earliest historiometric study was Adolphe Quételet's 1835 study: *A Treatise on Man and the Development of his Faculties*. This was the very first empirical study of relationship between creative output and historical age and is the first known historiometric investigation.

Other notable historiometric examples include James McKeen Cattell's 1903 study ranking the 1,000 most eminent persons in history – including those in science, art, politics, religion, and the military – measuring the level of their eminence according to the amount of space each subject took up in standard reference books. There was a notable study in 1904 by Havelock Ellis, in 1917 by Lewis M. Terman, and in both 1936 and 1950 by Edward Thorndike.

Lewis M. Terman also wrote a five-volume longitudinal study of gifted children followed through to adulthood called *Genetic Studies of Genius*, which went from 1929 through 1959. A final notable example is Catharine Cox's 1926 *Early Mental Traits of 300 Geniuses*. This is the single most ambitious historiometric study ever, and was the first to use partial correlation and the reliability coefficient. Cox began her study by taking Cattell's list of 1,000 eminent historical individuals. She then deleted the bottom half and eliminated hereditary monarchs and those born before 1450, leaving her with a total of 301 individuals in her sample.

Finally, Cox and her team of researchers used biographical data to rate the individuals on two IQ measures and then calculated the correlation between each individual's IQ and their ranked eminence. She took her study even further and examined the character traits of a subset of 100 individuals and determined that characteristics of motivation, such as energy, persistence, and determination, are more critical to success than even the highest IQ.

Application

Historiometry provides a very specific approach to research that cannot be achieved by alternative methods. Take, for example, the idea that highly successful, creative individuals tend to struggle with depression and mental disorders. In order to do a laboratory study on the hypothesis that these two variables are connected, a researcher would need to get past the ethical objections surrounding the idea of deliberately influencing a person's mental health and then find a method with which to do just that, followed by measuring in some way their level of eminence after the fact.

If you went with a more correlational approach, which is what is implied by the very question suggested in this example, the researcher would need to find creative individuals that are both struggling with depression or a mental disorder and have achieved a high-level of success. The usual subjects used for such correlational studies – college students, random survey participants picked off the street or through internet forums – are by their very nature not likely to have achieved a high level of success and therefore would not qualify for this specific study. Traditional methods present issues that must be overcome in

order to examine the type of nomothetic hypotheses that will help us understand the patterns of history and the unique characteristics of these significant samples. The primary difficulties researchers are faced with are, first, that the subject may be too famous to easily allow study. Even if available for study, the subject may be averse to psychological inquiry. Additionally, when we consider the pool of notable talents throughout history, many are now deceased and can only be considered at a distance.

Historiometric research addresses all of these problems. By using people who already exist – or existed in the past – the research by-passes the need to find a method to influence the mental health of a creative individual and also avoids the corresponding ethical objections. It allows not only for the use of living, contemporary individuals, but historical ones as well, allowing for a much larger sample size all the way around: *any* civilization, nation, or time period is opened up to the researchers. The greater the timespan, the more valid the resulting generalized laws or traits. Historiometric researchers come from many fields. Some, but certainly not limited to these fields, are the following: cognitive psychology, developmental psychology, differential psychology, and social psychology. Within the cognitive field, a researcher could examine, for example, either the creative process or the decision-making process. Developmental psychologists could use historiometrics to study the impact of genetic or environmental factors, career trajectories, or even life expectancies. Within the field of differential psychology a historiometric study could examine traits such as productivity, intelligence, openness to experience, motivation, and psychopathology. Finally, a social psychologist could use historiometry to study gender effects, social networks, group dynamics, leadership, socio-cultural context, and even the phenomenon of multiple discoveries (when more than one person comes up with a new idea or the same idea).

It is important to keep in mind, however, that not all research subjects or researchers are suited to historiometry. Many psychology concepts cannot be studied via historiometry. Historiometrics, after all, deals only with the intersection of history and psychology: when psychological questions demand the inclusion of historical individuals, events, or generations. It is also critical to remember that historiometrics is labor intensive. While the world of technology – most notably the advent of the internet and the laptop – has made the gathering of data more accessible, it still takes a great deal of effort to find, sift through, and analyze the variables necessary to create the database required of a historical correlational study of the magnitude engendered by historiometry. While historiometry is still relatively young, at least as far as the number of historiometric studies that have been completed, it has a lot of unique offerings for the field of psychology, with plenty of room for future growth.

See Also

Character and Leadership
Creativity, Assessment of
Genius, Assessment of
Genius, Personality Correlates
Idiographic vs. Nomothetic Research

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Internet Research in Personality

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Psychological science is experiencing a "reproducible crisis" or deficiency of replicability of findings, hampering the generalizability of the findings. The internet now plays an important role in nearly 40% of the world population that uses it in everyday life (Int. Telecommunication Union, 2015). Thus, it provides researchers with a new way to recruit a vast spectrum of participants and in real-world conditions across the globe, helping personality findings become truly generalizable. In this entry, we provide an overview of the current internet-based research in personality.

Internet-based Methods in Personality Research

Online Study Platform

Traditional paper-and-pencil assessments and laboratory-based behavioral experiments can easily be converted into online surveys and online experiments, respectively, without having to be knowledgeable about web-setting and programming. All researchers need is to use point-and-click interface to set up their own surveys/experiments and make the web link available to research participants.

Crowdsourcing Sites

With the advent of crowdsourcing sites, e.g. Amazon Mechanical Turk (MTurk), researchers have even more convenient ways to recruit targeted participants at a very low cost. Researchers simply post requirements for participation and financial compensation online. Initially, researchers had some concerns about the validity and reliability of the data gathered through MTurk. However, Buhrmester, Kwang, and Gosling (2011) rebutted such concerns. They showed that MTurk is a reliable research tool, producing high-quality replicable data.

Manipulation Checks

The quality of data collected online can be enhanced by applying manipulation checks. Oppenheimer, Meyvis, and Davidenko (2009) discussed how participants can complete attention-checking items, which have superficial resemblance to other items; however, if participants are inattentive, they will likely answer these "mock" items incorrectly. Researchers can also delete participants who have taken too much or too little time to finish experiments, or delete repeated attendances by examining IPs and so on.

Big Data and Social Network Sites

For the first time in the history of humanity, whole populations are accessible for research through large data sets (big data) obtained through the internet. Thus, big data and data science – an interdisciplinary domain in which techniques from multiple disciplines (e.g. statistics and computer science) – are utilized to predict and explain behavior (Dhar, 2012).

Social Network Sites (SNS)

SNS and new data-mining technology allow analysis of users' online everyday interactions, bringing new opportunities and challenges (e.g. privacy and ethical issues). Computer science and data science technology allow researchers to access internet users' footprints (e.g. browser history and user-generated contents on social network sites), making unstructured data become constructed, which has become an unprecedented tool to understanding human behavior (Manyika et al., 2011). How can one's digital records be associated with one's personality and eventually test personality theory? Techniques powered by computer science and data science are employed to extract participants' information from their SNS. Combining both data from digital records and data from personality measures, researchers can create their own algorithms to access other datasets and predict participants' scores of personality measures in order to test hypotheses based on a personality theory. For instance, myPersonality project is one of the most successful attempts to combine big data and SNS with internet research in personality (Kosinski, Matz, Gosling, Popov, & Stillwell, 2015). According to Kosinski et al., more than 40 peer-review academic articles have been published based on myPersonality-gained data. myPersonality application provides Facebook users a way to understand their own personality through widely used personality tests (e.g. the Big Five), with instant feedback to users.

In Researchers recruit participants from the large and diverse pool available both online and offline. Facebook speeds up the process of data collection by collecting pre-existing information of participants (e.g. demographic profiles and social interactions). With participants' consent, these data can be recorded retrospectively in a convenient, accurate, and inexpensive way directly through Facebook without self-reports (Kosinski et al., 2015). Researchers are able to access users' social media networks using Application Programming Interface (API), which is a protocol used to collect data or set up experiments. Thus, researchers can examine users' information, including but not limited to demographic profile (e.g. gender,

nationality, working status, physical locations, romantic interests, and education history), user-generated content (e.g. self-portraits, photos, status, and comments), social network structure and relationships (e.g. family connection, friends), and activities (e.g. likes, share). For example, Park et al. (2015) conducted a study that provided evidence that written language from Facebook users is a valid way to assess personality.

By linking the Facebook Graph API to their own online survey or online behavioral experiments, researchers can collect both user-generated online information and new psychological data (i.e. results from psychological inventories and experiments). Furthermore, other social networking sites also could be applied to collect user-related data with respective API (e.g. Twitter API and LinkedIn API). In this way, user-generated online information can be quantified and analyzed along with psychological data by natural language processing software.

Mobile Internet

Researchers have begun to use mobile internet and smart electronic device (e.g. smartphones, smart band, and wearable computers) to conduct personality research. For example, de Montjoye, Quoidbach, Robic, and Pentland (2013) applied five psychological informative indicators, including basic phone use (e.g. number of interaction text), active user behaviors (e.g. response rate and latency for call), spatial behavior (e.g. distance traveled and number of places where calls were made), regularity (e.g. inter-time of call and text), and diversity (e.g. number of contacts), in order to predict participants' scores on the Big Five personality inventory using SVM algorithm. In addition, Sano et al. (2015) used scores from Big Five and other data collected from wearable devices (e.g. skin conductance, walk and run activities) and mobile phones (number of calls, online duration) to predict academic performance (GPA), perceived stress, quality of sleep, and mental health. They found that data collected from wearable devices had similar predictive validity to personality assessment. These devices provide alternative ways to self-reported assessment. In fact, Staiano, Lepri, Aharony, Pianesi, Sebe, and Pentland (2012) found that the combination of mobile behavioral data and social network analysis (see section below) predicted personality better than self-reported data. Furthermore, a study conducted by Youyou, Kosinski, and Stillwell (2015) found that computer judgments based on digital footprints collected from Facebook yielded better predictions than close-others and acquaintance ratings.

Social Network Analysis (SNA)

SNA is a strategy to study social structure using graph theory from both computer science and mathematics (Otte & Rousseau, 2002). Burt, Kilduff, and Tasselli (2013) discussed SNA as a method to study how patterns of interpersonal relations are associated with diverse psychological topics. With large datasets available online and advanced methods of data analysis, SNA could bring further insights to personality science. Currently, there are only few studies that used SNA and data from the internet. For example, Na, Kosinski, and Stillwell (2015) recently used data from Facebook and found that users in collectivistic cultures had less ego-centric networks (i.e. individuals themselves are centered in their networks and connect people of their networks) compared with users in individualistic cultures.

Conclusion

The capability of data collection and data analysis through the internet has tremendously innovated some fields, such as physics and biology (Lazer et al., 2009). Now personality science benefits from the internet to collect big data from hard-to-reach samples that would be almost impossible a few decades ago, helping to generalize the findings. Smartphones and other wearable computers are now being used to derive automatic determination of personality structure, which is a new and exciting way to assess personality.

See Also

Computer Adaptive Testing (CAT)
Experimental Approaches
Linguist Analysis in Personality Research (including the Linguistic Inquiry and Word Count)

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Linguistic Analysis in Personality Research (including the Linguistic Inquiry and Word Count)

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Our word choices communicate significantly more than we intend; in fact, researchers analyzing written and spoken language find that word use reveals a great deal about our thoughts, behaviors, and emotions. In an effort to understand the health benefits of expressive writing, a group of researchers developed a computer program known as Linguistic Inquiry and Word Count (LIWC; Pennebaker, Francis, & Booth, 2001) that analyzes the content and style of spoken and written language. Since its initial development 15 years ago, LIWC has become one of the most widely used applications for analyzing linguistic data. Using a computer program to analyze text reduces the resources required for research involving behavioral analysis, enabling investigators to systematically analyze massive quantities of data in very limited amounts of time.

How LIWC Works

The foundation of LIWC is a dictionary composed of approximately 4,500 words and word-stems. Within that dictionary, there are approximately 80 sub-dictionaries that represent word categories. The output contains a score for each category that represents the proportion of words that fall into that category (i.e. positive emotion words, pronouns) compared to the total number of words in the passage. The dictionaries are arranged hierarchically, such that one word can fall in to multiple categories. For example, the word "worry" falls into three word categories: anxiety, negative emotions, and affective processes. LIWC is designed to analyze both spoken and written language and has categories specifically targeted toward spoken language, such as fillers (i.e. "you know"), non-fluencies (i.e. "errr," "um") and swear words.

   The 80 word categories represent four main language dimensions. *Language composition* includes descriptive information such as total word count, average words per sentence, and percentage of words longer than six letters, as well as style words such as prepositions,

articles, and pronouns. *Psychological processes* include word categories aimed at tapping emotional, cognitive, and social processes and are similar to the categories seen in many other linguistic analysis programs. *Relativity* dimensions encompass time, space, and motion categories. Finally, *current concern* dimensions are common in content analysis and include categories such as money, occupation, and physical states.

The LIWC program underwent rigorous evaluation in order to establish a reliable and valid system for analyzing language. During the development phase, a panel of three judges made independent decisions about the inclusion of each individual word based on lists of potential words created by research assistants. The dictionaries were then re-assessed by a panel of three more judges, resulting in rater agreements ranging from 93% to 100%. In 2007, after over 100 million words were analyzed using the LIWC program it underwent a major revision of its dictionaries, which included expanding commonly used categories and removing some categories that had consistently low base rates or poor reliability (Tausczik & Pennebaker, 2010; Pennebaker et al., 2007). Since its initial development, LIWC has demonstrated strong reliability and validity across multiple studies (Mehl & Pennebaker, 2003).

LIWC researchers distinguish between two broad categories of words that are captured by text analysis. Content words are typically nouns, verbs, and adjectives that convey the substantive content of the text. Style words, also known as function words, are composed of articles, pronouns, prepositions, and auxiliary verbs (e.g. "it," "we," "was") that constitute the way we communicate information through language. Only about .05% of words in the English language are style words, yet we cannot communicate without them. These words make up about 55% of our spoken and written language. Although these words may appear less interesting, they actually reflect subtle but important differences in the speaker's and listener's shared knowledge, context, and relationships. Style words have been linked to personality, stress, depression, social status, and even physiological reactivity (Chung & Pennebaker, 2007). Because these words are so commonly utilized but their production and processing are largely unconscious, they offer a unique and implicit angle from which to examine our thoughts and behavior.

Applications of LIWC

Empirical work using linguistic analysis is expansive and covers a wide array of psychological constructs; a few of the major topics will be reviewed below. Language style matching (LSM) refers to the extent to which individuals mirror each other's word use and language style. Language matching occurs in all types of verbal interchanges between two or more people and is typically undetectable by both the speakers and outside observers. In fact, LSM levels are unrelated to self-reported quality of the conversation (Niederhoffer & Pennebaker, 2002). LSM is focused on the use of function words because these words are used frequently, processed quickly, and require shared social knowledge between conversation partners. LSM is thought to capture the extent to which individuals attempt to engage the other person as well as the degree to which those efforts are reciprocated. Higher LSM has been found to predict group cohesiveness and peaceful conflict resolution as well as romantic interest and relationship stability (Gonzales, Hancock, & Pennebaker, 2010; Ireland et al., 2011).

Verbal immediacy, a construct that represents degree of psychological engagement, is marked by high rates of first-person singular pronoun use and less frequent use of articles, long words, and discrepancy words. People using high verbal immediacy appear emotionally immersed in the topic being discussed while less verbal immediacy indicates a more distant or unengaged tone. For example, a statement such as, "I am mad about that" would score high on verbal immediacy whereas "That conversation angered me to the depths of my being" displays low verbal immediacy. Researchers have examined verbal immediacy as a predictor of formality, coping with trauma or loss and attachment security (Borelli et al., 2013; Cohn et al., 2004).

LIWC is commonly employed as a measure of verbal expression of emotional experiences. Validity studies reveal that more positive emotion words are used when writing about amusing events compared to sad or neutral events, and more negative emotion words are used when writing about sad events (Kahn et al., 2007). Emotion word use also signifies level of immersion in emotional experiences; those who use more negative emotion words when writing about trauma experiences also felt more physical pain (Holmes et al., 2007). In studies on savoring, participants who were instructed to write about positive relational memories used more positive emotion words than those asked to discuss a neutral event (i.e. morning routine; Burkhart et al., 2015).

Research Using LIWC

Age differences in language use have been found across longitudinal and cross-sectional studies. The use of first-person pronouns decreases over time while insight words, future tense verbs, and exclusion word use increase with age (Pennebaker & Stone, 2003). Other studies have found that younger people use more filler words (i.e. "you know") than older people (Laserna et al., 2014). An analysis of 14,000 text samples from 70 different studies revealed multiple gender differences in language use. Men use more complex language, such as longer words, more numbers, and more articles and prepositions, while women use more pronouns and social words, as well as less swear words than men (Newman et al., 2008).

Several studies examining thousands of text samples have found consistent patterns of word use across Big Five personality dimensions. Higher word count, fewer large words, and less verbal complexity has been associated with extraversion. People high in extraversion also tend to use more positive emotion words, less negative emotion words, and more social words. Conscientiousness and Agreeableness are consistently related to more positive emotion words, fewer negative emotion words, and fewer swear words, while Neuroticism is related to less positive emotion word use and more negative emotion words. Verbal immediacy is positively related to Openness to Experience and inversely related to Agreeableness (Mehl, Gosling, & Pennebaker, 2006; Pennebaker & King, 1999; Yarkoni, 2010).

The utility of LIWC has allowed researchers to examine other psychological processes that are difficult to detect via self-report. In studies on deception, Newman and colleagues (2003) concluded that when discussing the same topic, people instructed to tell a lie used fewer markers of cognitive complexity, more negative emotion words, fewer first-person pronouns, and fewer qualifiers (e.g. "but") than those telling the truth. In the context of groups and social relationships, first-person plural pronoun use has been linked to

higher social status and more group cohesion while first-person singular pronouns indicate lower social status (Kacewicz et al., 2014).

Assessing word use among depressed people and victims of suicide has illuminated the inner thoughts of those suffering from mental disorders. One study found that depressed students use more first-person pronouns and negative emotion words than students who have never been depressed (Rude et al., 2004). An examination of 300 poems from suicidal and non-suicidal poets revealed that suicidal poets used more first-person pronouns and more death-related words than non-suicidal poets (Stirman & Pennebaker, 2001). In a study of 40 suicide notes, researchers found that notes from completed suicides included more future tense verbs, more social references, and more positive emotion words than notes from attempted suicides (Handelman & Lester, 2007).

Word use has also been studied in the context of romantic relationships. In addition to the LSM research discussed above, women's use of first-person pronouns in instant message conversations predicts higher relationship quality among dating couples (Slatcher, Vazire, & Pennebaker, 2008). Alternatively, "you talk," or second-person pronoun use predicts lower relationship quality and more negative relationship interactions, while "we talk" is associated with more positive problem solving (Simmons, Gordon, & Chambless, 2005). "We talk" in couples is also predictive of better health outcomes in heart failure patients, and even more than self-reported marital quality (Rohrbaugh et al., 2008).

Conclusion

This brief review of a large and robust body of research reveals the importance of studying word use and its implications for understanding our personalities, relationships, and psychological processes. While we are beginning to gain an understanding of the dynamics of our language use, there is still a great deal left to discover. The development of Linguistic Analysis and Word Count has opened the doors to a greater understanding of human behavior through the way we speak, write, and converse.

See Also

Individual Differences in Coping with Stress
Personality and Language

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Personal Narratives

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Brief Overview

Narrative inquiry is a relatively new qualitative methodology that investigates experience as told through the telling, retelling, and interpretation of personally meaningful stories. It is grounded in firsthand experience and is based on the idea that it is humanity's ability to use narrative to create meaning out of confusion by joining observation and theory in meaningful ways. The process moves from the researcher asking participants to tell their stories, to field texts, to interim and final research texts. Narrative inquiry draws from qualitative methods in ethnography, anthropology, history, and literature. It is not restricted to psychology, but can, instead, be found in many fields: social sciences, health, sexualities, law, human development, nursing, and literary theory (to name a few). Narrative inquiry is not so much a method with a specific set of techniques as it is a way of thinking, with narrativists understanding that "a person's lived and told stories are who they are and who they are becoming and that these stories sustain them." It is a fluid, reflexive process with interpretations and adjustments to understanding repeatedly evolving as the inquiry – the narrative – continues to be lived out.

The Evolution of Narrative Inquiry

Some of the earliest work with personal narratives was done by Freud, Allport, Piaget, and Erickson. The Russian philosopher Mikhail Bakhtin and the French philosopher Paul Ricoeur are also important. Other narrativists, depending on their area of emphasis, will look to researchers such as: Wilhelm Dilthey, Edmund Husserl, and Martin Heidegger, as well as Carol Gilligan and even anthropologist Clifford Geertz.

Ted Sarbin edited *Narrative Psychology: The Storied Nature of Human Conduct* in 1986 and argued that psychology was in need of a transformation to the more organic idea of

narrative. This book contained chapters by a variety of psychologists who were developing methods for incorporating and investigating the ways people and narratives interact. Sarbin came to believe that when we share our own narratives, for whatever purpose, we are doing more than cataloging events; we are weaving the story of our lives.

Jerome Bruner, an early pioneer in the field, began to explore narrative as applied to psychology in the 1990s. He believed narrative was an organizational tool and used it to study how people create meaning and construct their reality. People are predisposed to organizing experiences in a narrative manner, with cultures creating the boundaries of what are acceptable stories and a narrative lens through which experiences become understandable to both the self and the community.

Polkinghorne, developing along the same lines as Sarbin and Bruner, emphasized the dynamic aspect of narrative: the idea that we are in the middle of our lives – our plots – and must revise our story constantly. Our identities and self-concept are expressions of a developing story, with no real idea of how they will end. As we engage in this revision and development, we reorder our memories to fit an organization that makes sense according to our newest experiences.

Terms and Definitions

Personal narratives allow the researcher to understand and inquire into an individual's lived experience through the relationship between researcher and participants which takes place over time. Although narrative inquiry shares features with other forms of qualitative inquiry, personal narrative research is a distinct methodology. Connelly and Clandinin (1990) identified three such "commonplaces" to identify those qualities that make personal narrative research distinct: temporality, sociality, and place. These commonplaces are used to guide the researcher, providing framework and dimensions for the narrative inquiry. While other qualitative methods may at one time or another touch upon or focus on these commonplaces, it is the unique characteristic of personal narrative research that incorporates a simultaneous examination of all three commonplaces.

Temporality

Temporality refers to the timing of the story being told. It is vital to be aware that people's lives – their narrative story – always have a past, present, and future. The places, people, and stories they tell all occur in process. Narrativists needs to keep in mind the temporality of participants' – and their own – lives, as well as that of places, things, and events. None of it is a static point in time, but is constantly evolving and changing. This occurs as the future transitions to the present, the present to the past, and the views of each change to incorporate knowledge gained in the process.

Sociality

The second commonplace, sociality, refers to two distinct characteristics: the personal conditions and the social conditions of their participants. Personal conditions refer to the

feelings, hopes, and desires of both the inquirer and the participant. Social conditions include the environment, the surrounding people, and the cultural factors and forces in the participant's and researchers lives. It is important to note that, in both instances, the researcher's conditions are a vital part of the research and cannot be excluded from the relationship inherent to the inquiry.

Place

Place can be either a single place or a series of places; both of the narrative being told and of the location in which the narrative is being told. Place is a particular position or point in space and includes concrete, specific boundaries. Just as narrativists must keep in mind temporality and sociality, inquirers cannot ignore the commonality of place in their chosen research. All events take place somewhere, in some place, and this cannot be removed from the stories we are telling.

Narrative Inquiry Research Design

Narrative inquiry research does not just happen. It requires thought and planning; it must be designed. This includes evaluating the justification for the research, naming the phenomenon – the what – that is being researched, where to start the narrative inquiry and what methods to use, and, finally, interpreting and analyzing the data.

There are three different ways to justify narrative inquiry research: personal, practical, and social. The justification tells the researcher – and the scientific community as a whole – why the research is important. While personal justification is rarely described in great detail in published narrative inquiries, it is important nonetheless. It allows the researcher to think about their own life in relation to the study.

Beyond that, however, and keeping the research question in mind, a narrative inquirer must think narratively – using the three commonalities – about the phenomenon throughout the research. Ideally one frames a research question without a precise definition, looking instead to frame the research in a flexible manner that contains a heavy degree of searching and reformation.

As with other forms of qualitative research, a prepared researcher will determine and describe the field texts (a narrative inquirer's data) that will be collected and compiled. These texts, or data points, can include transcripts of conversations, field notes, family stories, artifacts, photographs and other accounts that are composed by narrative inquirers and participants to represent aspects of the participants' lived experience. Ideally, the research collects a variety of texts and stories in order to triangulate the data. This helps improve reliability and validity.

These elements must be combined with a willingness to think creatively and challenge the notion that the phenomenon is fixed and unchanging. Narrative inquiry always takes place in the middle of changing and evolving experiences. Both the inquirer and the participant continue to learn and grow as the narrative inquiry takes place. The phenomenon, and the approach to studying the phenomenon, must learn and grow just as the people involved do.

Interpreting and Analyzing the Data

The fluidity of a narrative inquiry results in an equally fluid process of data analysis and interpretation. The successful narrativist will move from the field and field texts, to interim research texts, to final research texts, adjusting the research protocol and returning to earlier stages as needed, based on new insights gleaned throughout the process. While in the field, a narrativist will find themselves in the middle of stories that are being lived and shared simultaneously. Interpretation is naturally an ongoing process and requires that researcher and participants acknowledge that their past is always colored and altered by the lens of their present. When moving from the field and field texts to interim research texts it is common to want to move on to objective analysis. However, to increase both validity and reliability, the researcher must engage in a cyclical process of field research and later analysis until only repeated themes are found in the stories – until the data has reached a saturation point. In addition, narrative inquirers may want to place space between themselves and their participants. It is important to resist that impulse. A narrative must include the three commonalities, from both the inquirer's and the participant's point of view, in order to be a narrative.

Most narrative research tends to include far more data than what ends up in the final text. It is also important when developing these final research texts that the researcher is transparent in sharing the process for choosing what to include and that the final voice that comes through is that of the participants, not the inquirer.

Challenges

As with other types of research, narrative inquiry is not composed solely of strengths. The following challenges are an inherent part of narrative research: positioning in the scientific community, ethical considerations, and representing the appropriate voice.

When considering a particular phenomenon, researchers tend to arrange research and compile data in relation to the scientific community as a whole. Narrative inquiry, however, tends toward having a sense of incompleteness – due to the fact that it takes place in the middle of participants' lives – and rarely leads to the generalizations or certainties that are expected in other forms of research. Knowledge of a variety of epistemological and ontological assumptions is an important component of narrativists' ability to find the borders around the relationship between researcher and participant, experience and content, and the understanding of how experience is lived and shared with a broader audience. When this happens, narrative inquiry can lead toward "wondering about and imagining alternative possibilities" (Clandinin & Huber, 2014).

Ethical considerations are an especially important element of narrative inquiry. Not only must a narrativist hold themselves to the ethical standards of typical research, but (s)he must also remember that the close relational aspects of narrative inquiry require a heightened commitment to the idea of "do no harm." Striving to understand before being understood, suspension of judgment and disbelief, and a commitment to the idea that relational responsibilities are longterm are important steps in meeting the ethical needs of a narrative inquiry. Additionally, there is a final responsibility to develop the voice and signature of the research texts with care.

With all of the choices for field texts and narrative forms, as well as the wide variety of backgrounds that can be encountered both through the inquirer and the participant(s) – as well as the final audience, the researcher will be required to balance many different elements. The most important element, however, is the voice of the participant, the one (or ones) whose story is being told. Receiving feedback throughout the process from a variety of people, with a variety of backgrounds, can help the narrativist strike the right chord. When done correctly, narrative inquiry is about life stories, connecting story and life as we simultaneously live and create our stories.

See Also

Carl Jung
Idiographic vs. Nomothetic Research
Narrative Approach or Personal Narratives
Psychobiography and Case Study Methods

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Personality Development Across the Lifespan

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The term "personality" refers to differences between individuals in cognition, emotion, and behavior, and how these parts function together. Although there are no typological models for personality, there is growing evidence suggesting that broad individual differences in personality can be categorized. The Five Factor Model organizes these broad, higher-order traits, into five domains: Extraversion, Agreeableness, Consciousness, Emotional Stability, and Openness to Experience.

In the past decade, research has shown that personality traits are neither solely biologically-based and stable, nor fluid and prone to change. Instead, with age they develop through continuous and discontinuous processes. Patterns of discontinuity are easily identified in childhood considering children's rapid physical and psychological development. Longitudinal studies document links between early childhood temperament and the Big Five personality traits in adolescence and adulthood. Temperament, also referred to as lower-order traits, consists of narrow traits including components of self-regulation and emotionality. Support for typological models of temperament are based on several caregiver temperament questionnaires for children which have yielded consistent types of temperament. Current models suggest that temperament consists of the following traits: positive emotions or pleasure; fear or inhibition; irritability, anger, or frustration; attention; activity level; and soothability or adaptability.

Temperament and personality trait research have shown that variations in behavior (i.e. talkativeness) can be understood by observing the influence of higher-order traits (i.e. extraversion) on variations of lower-order traits (i.e. sociability). The overlap between childhood temperament and personality traits in adulthood may be explained by several factors. Recent empirical work has demonstrated that temperament and personality are both moderately hereditary, molded by experience, and influenced by specific habitual positive and negative emotions.

Assessment of Personality Across the Lifespan

Personality assessments vary in the extent to which they focus on single versus multiple constructs, are designed for children or adults, and index variations in non-pathological or pathological personality traits. Types of assessments include: self-reports and questionnaires, informant reports, life data (verifiable police or medical records, web pages), behavioral observation data (temperament and physiological measures), and projective tests (interpretations of ambiguous ink blots, pictures, or drawings). The assessments discussed below measure the stability and change of non-pathological personality development throughout the lifespan.

Contemporary Child and Adolescent Personality Assessments

A commonly used temperament assessment for older children is the Junior Temperament and Character Inventory (JTCI) based on Cloninger's psychobiological model of personality. The JTCI is a self-report administered to children between six and 14 years old and consists of four temperament traits (novelty seeking, harm avoidance, reward dependence, persistence) and three character dimensions (self-directedness, co-operativeness, and self-transcendence).

In addition to self-reports and parent reports, temperament may also be assessed with neurological and physiological measures. Contemporary personality researcher Jerome Kagan has shown that infant reactivity levels are highly genetic and linked to adult inhibition levels by using measures observing heart rate, hydrocortisol levels, and amygdala activation.

Furthermore, research suggests links between early temperament and later personality traits. Specifically, parent and teacher reports, behavioral tasks, observational measures, adjective lists, and the California Child Q-set have produced factors similar to the Big Five in studies of three-year-old children to adolescence. Studies using the NEO Personality Inventory-3 (NEO-PI-3) have shown high test-retest correlations. The NEO-PI-3 measures the Big Five domains of personality and the six facets defining each domain. It may be administered to children as young as 12 years of age.

A study by Kagan examining the link between early childhood temperament and the Big Five measured behavioral styles of 1,000 three-year old children and their self-reports on the Multidimensional Personality Questionnaire (MPQ-BF) at age 18. The MPQ-BF consists of 155 items measuring four types of non-pathological broad traits (Positive Emotional Temperament, Negative Emotional Temperament, Constraint and Absorption) and 11 primary trait dimensions (well-being, social potency, achievement, social closeness, stress reaction, alienation, aggression, control versus impulsivity, harm avoidance versus danger seeking, traditionalism, and absorption). The study found that three-year-olds characterized as *undercontrolled* (impulsive, restless, and distractible) became 18-year-olds with low *constraint* and high *negative emotionality*. *Inhibited* three-year-olds (fearful and easily upset by strangers) became 18-year-olds with high *constraint* and low *positive emotionality*. Similarly, children at age three who were either *well-adjusted*, c*onfident*, or *reserved*, all

scored consistently with their qualities at age 18. Thus, early childhood temperament is predictive of adolescent traits and temperament is stable over time.

Contemporary Adult Personality Assessments

Although controversy surrounds the increased reliance on the Five Factor Model, factor analyses of adjective lists from countries such as the USA, Germany, Poland, Japan, and the Netherlands support the Big Five. A commonly used self-report or informant-report assessing the Big Five is the Revised NEO Personality Inventory (NEO-PI). The NEO-PI assesses emotional, interpersonal, experiential, attitudinal, and motivational styles by measuring the five domains as well as the six facets defining each domain. Another questionnaire assessing the Big Five is the Sixteen Personality Factor Fifth Edition Questionnaire (16PF), which has high concordance with the NEO-PI. The 16PF contains 185 multiple-choice items predicting several behaviors such as leadership style, compatible occupations, self-esteem, coping patterns, empathy, conscientiousness, social skills, and power dynamics.

Data support the stability of personality traits indexed using assessments grounded in the Five Factor Model – a meta-analysis of personality stability revealed moderate test-retest reliability; moderate interrater reliability; increases in stability with increasing age; decreases in stability with increasing time intervals between observations; and consistency in reliability across the Big Five traits, assessment method (i.e. self-reports, observer ratings, and projective tests), and gender.

The current studies documenting personality stability and change consider distinct types of stability. The continuity of the exact same thoughts, feelings, and behaviors across time, referred to as homotypic stability, includes four types. "Absolute stability" results from maturational processes or social-contextual factors which generally influence a population, and can be examined longitudinally by measuring individuals in phases of transition. Studies document coherent patterns of mean-level change into middle age in cross-sectional and longitudinal studies. In a cross-sectional study by Srivasta, John, Gosling, and Potter (2003), 132,515 adults aged 21–60 completed the Big Five Inventory online. The BFI consists of 44 items rated on a 5-point Likert-scale. The study showed that the social dominance facet of extraversion tends to increase to the mid-30s and then plateau, whereas the social vitality facet tends to peak, remain stable across mid-life, and decline after age 55. Average levels of *agreeableness* tend to increase gradually across the lifespan. Average levels of *conscientiousness* also gradually increase, but may decline in mid-life or old age. Average levels of *neuroticism* gradually decline across the lifespan, but may increase in old age. Finally, *openness to experience* tends to increase during adolescence and gradually decrease across the lifespan.

The patterns of absolute change can be explained in two different ways. From an *intrinsic maturational position*, changes in personality may be biological influenced. Studies show that all Big Five traits are genetically influenced similarly in both men and women, and that these factors affect the preservation of individual differences over the lifespan from adolescence onward. This is consistent with Allport's (1973) proposition that personality traits are "neuropsychic entities." In fact, current evidence suggests that the Big Five have neurobiological correlates. *Extraversion* is associated with biological systems of motivation and approach behaviors. Systems of behavioral control, anxiety, and threat detection are related to *neuroticism*. *Agreeableness* is linked to systems involved in social connection and

affection. Finally, the executive control systems involving the prefrontal cortex are related to *conscientiousness*. According to the *life course position*, however, changes in personality are due to the interaction of an individual's social roles and life experiences. Existing evidence supports the *life course position,* although some changes in personality are biologically influenced.

The second type of stability is "differential stability" – the degree to which traits are ordered and consistent over time compared to an individual's relative placement in a group. Evidence using self-reports and informant reports of rank-order stability show that average levels of all Big Five traits increase across the lifespan due to the decrease of maturational changes. Differential stability is remarkably high. The only construct more consistent than personality traits is cognitive ability. In a recent review of 80 longitudinal studies synthesized according to the Five Factor Model, Roberts and DelVecchio showed that with an interval of seven years, test-retest correlations increased from childhood to early adulthood and kept increasing until a plateau between 50 and 70 years of age.

The third type of homotypic stability is "structural stability" – the similarity over time in the patterns of covariation of traits on personality scales. Structural change may indicate a developmental transformation. For example, factor analyses of cognitive test items in early childhood suggest that there are qualitative changes intelligence. Conversely, most studies of personality have shown that there do not appear to be qualitative structural shifts beyond adolescence in personality traits.

Absolute, differential, and structural stability focus on the stability of samples of individuals. Finally, "ipsative stability" is the continuity of personality traits and how they are preserved over time at the individual level. Little longitudinal research has been conducted from this point of view. A major study employed the Q-sort technique by computing correlations across the set of attributes' Q-correlations between an individual's Q-sort profiles at different time periods. Results showed higher Q-correlations between early and late adolescence, than between adolescence and adulthood. However, intra-individual correlations were moderately negative, to zero.

In contrast to homotypic stability, heterotypic stability describes personality coherence – the continuity of inferred genotypes' attributes presumed to underlie different phenotypic behaviors. It can only be understood by referencing the same trait according to a theoretical conceptualization of it. For example, the capacity to delay gratification during toddlerhood is consistent across development as it predicts adolescents' academic and social competence 10 years later.

The different types of stability and change are influenced by multiple factors including self-reflection and how much positive or negative reinforcement individuals receive regarding their behaviors. However, it is unclear whether environmental stability is the product or cause of personality continuity. Stability may be promoted as individuals' expectations generate self-fulfilling prophecies or as they immerse themselves in environments that fit their individual characteristics. Reactive person-environment transactions are characterized by individuals who interact with the environment subjectively. In evocative person-environment transactions, individuals evoke reactions from others based on their unique personality characteristics. The person acts, the environment reacts, and the person reacts back. In proactive person-environment transactions, individuals' personalities affect their social relationships which serve to distinguish differences between people.

Conclusion

The Five Factor Model offers a compelling delineation of associations between child temperament and adult personality. However, the lower-order facets of the NEO-PI-R have been criticized for lacking empirical validity. Future studies should employ new empirical strategies assessing facets to complement the assessment's strength in discriminant validity, heritability, and developmental progress.

Research in personality development shows that patterns of stability and change of the Big Five are complex and influenced by person-environment transactions. A plethora of personality assessments exists; however most are self-reported scales, which may lead to faked good or bad responses. Thus, increased empirical analysis of items prior to their inclusion in personality measures is highly recommended.

In considering the limitations of the field of personality psychology, it is important to note that the field has expanded over the past decade and advances in methodology will continue to add to the knowledge of the origins of individual differences.

See Also

Big Five
Personality Development
Personality Stability over Time

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Personality in Non-Humans

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That there are differences in behavior between individuals may seem obvious. Indeed, these differences have been a subject of interest for thousands of years (e.g. Hippocrates, Plato; 370 B.C.). More modern research has examined these differences in increasingly fine detail, leading to the formation of personality psychology. Until recently, this systematic study of individual differences focused on those of humans. However, the field of non-human animal personality has exploded in the last few decades, with empirical data now available for more than 65 species (Gosling, 2001). Across human and non-human literatures, personality is defined as individual differences in behavior that are consistent across time and contexts (Gosling & John, 1999). There has been increasing recognition that regardless of species, there are a large number of components to these individual differences, including underlying genetic, neurological, cognitive, and motivational elements (Uher, 2008). In order to examine these differences in non-human animals, methods for assessing human personality, as well as existing ethological methods, have been adapted for this area of psychology.

Behavioral Coding

Two methods have become particularly dominant in non-human personality data collection: behavioral coding and trait rating. The former has a long history in other areas of animal research, with roots in the traditional study of behavior (Tinbergen, 1951). In its simplest form, this method involves observing an animal and recording the frequency and/or duration of behaviors of interest. Which behaviors these are depends both on the study's aims as well as the subject species. For example, a personality assessment aiming to reveal general personality dimensions in an unstudied species may measure the frequency of all behaviors known to occur in that species, as researchers would have no previous basis on which to discriminate. In contrast, an assessment measuring a single trait, such as curiosity, in a well-studied species would likely be

able to measure a small number of relevant behaviors elucidated from previous literature (e.g. gaze duration, approach latency).

Once the behaviors of interest have been identified, the method, duration, and frequency of observations must be determined. As observations made at a single time point are not reliably predictive of overall behavioral tendencies, data from multiple observations are typically aggregated to achieve high reliability and validity (Uher, 2008). In practice, this means that each animal must be observed more than once, although there is no universally agreed minimum number of observations. Within each observation, one further major decision concerns the type of sampling method, and two approaches are common. In focal follow designs, each animal is exclusively observed for a period of time, while scan sampling involves recording the behavior of every animal in a group at pre-determined time intervals (Altmann, 1974).

Within this basic observational methodology, there are two major variations; observations may be made in either a naturalistic setting, without any human manipulation or intervention, or in an experimental environment in which animals are exposed to standardized stimuli (Diederich & Giffroy, 2006). The former is particularly useful for animals which are difficult to test in controlled circumstances, such as large, mobile, and/or rare species. As the potential stimuli to which animals respond in an unmanipulated environment are not standardized, many more repeated observations are required in order to build a representative picture of each individual's tendencies. For example, in an assessment of African elephants, each animal was observed 160 times over two summers, for a total of 40 hours each (Horback, Miller, & Kuczaj, 2013).

The second type of behavioral coding, experimental testing, allows for greater standardization and control of possible confounds. As a result, individual animals can be statistically compared across very specific conditions and behaviors. This specificity and standardization means that unlike naturalistic coding, extensive repeated observations are not required. Instead, a variety of individual tests may be carried out and these may each target the same or different personality traits. As a result, behavioral tests are more efficient than naturalistic coding. In some species, such as the domestic dog, this type of testing is by far the most common method for assessing individual differences (Diederich & Giffroy, 2006; Jones & Gosling, 2005).

Historically, many have regarded behavioral coding as the gold standard for independent, objective assessments of animal personality. However, both experimental and naturalistic coding involve inherently subjective judgments (Uher, 2008). The selection of relevant behaviors is based on previous literature and knowledge of the range of behaviors performed by a species, which is often incomplete for many species. Furthermore, the behavioral categories and definitions used in personality assessments are always from a human perspective. This necessitates subjective judgments, such as the interpretation of the appearance of a behavior, or its function. For example, bottlenose dolphins frequently exhibit an open mouth behavior in aggressive contexts (Overstrom, 1983). Even though this behavior is based on a physical classification (mouth open or closed), there are still several subjective judgments that must be made to record the presence or absence of this behavior: How open must the mouth be to be classified as "open mouth" behavior? If the behavior is observed while a dolphin is engaged in an affiliative, social interaction, should it still be classified as aggressive? Such subjectivity in even the simplest of behavioral definitions

clearly demonstrates that while behavioral coding is an extremely useful method, it is not infallibly objective. Furthermore, even if we were able to standardize behavioral definitions and interpretations across observers, different species manifest similar personality traits in the form of drastically different behaviors, and even within-species variation between individual externalizations of the same traits. For instance, it is unlikely that a curious human exhibits the same behaviors exhibited by a curious bottlenose dolphin, while one fearful dolphin may display a flee response in a context in which another displays aggressive behaviors.

Trait Rating

The major methodological alternative to behavioral coding is trait rating, which has its roots in human personality research. In that context, friends or family members rate a focal individual on trait descriptors. For non-humans, human judges rate individual animals on specific personality traits, and such ratings have proven reliable and valid across species and traits (Uher, 2008). In a basic trait rating design, traits are assembled into a questionnaire which asks the rater to place a subject animal on a scale for each trait. Raters may complete multiple questionnaires, each for a different animal, and questionnaires can be anywhere from just a few items long up to a few dozen. Within this basic paradigm, there are two major ways in which methodology varies across studies: rater identities, and the pool of trait items on which animals are rated.

Raters are typically individuals who have extensive experience with the subject animals, such as zoo keepers (e.g. Horback, Miller, & Kuczaj, 2013) or pet owners (e.g. dogs; Jones & Gosling, 2005). This ensures that raters have had sufficient repeated encounters with the subjects, and can therefore aggregate this experience into valid ratings. However, there is no consensus on the expertise or familiarity required in order for someone to act as a rater, although more experience is generally considered to be better. However, even when all raters have long-term experience with the subjects, the nature of their experience seems to play a role in their interpretation of an animal's personality. For example, veterinarians and animal care staff did not produce reliable ratings of Garnett's bushbabies, likely due to their dramatically different experiences with the subjects (Highfill, Hanbury, Kristiansen, Kuczaj, & Watson, 2010). Finally, there is evidence that untrained, inexperienced raters are able to produce reliable and valid ratings of certain traits, in both naturalistic and behavioral testing settings (e.g. Carlstead, Fraser, & Kleiman, 1999; Petelle & Blumstein, 2014). In reality, the challenges associated with achieving a reasonable sample size in non-human personality research mean that whichever raters are available will tend to be used, and any who deviate from the majority in reliability analyses can be excluded.

In order to generate a pool of traits on which subjects are to be rated, studies have predominantly used a top-down approach, in which items are sourced from an existing theoretical framework (Weiss & Adams, 2013). Typically, the existing model used is a human one (e.g. the Big Five), which facilitates cross-species comparisons at the cost of a potential anthopocentric bias. This bias is already somewhat intrinsic in the rating method, given that trait items are inherently human descriptors of externalized personality traits (Uher, 2008). Nevertheless, there are several methodological approaches that can be employed to

mitigate this limitation of trait rating. First, other trait selection strategies can be incorporated. For example, "experts" on a certain species, such as academics or wildlife staff, may be asked to nominate trait words which they feel are relevant to the focal species, or a species' behavioral repertoire could be examined to identify areas of variability and related traits (e.g. Freeman et al., 2013). Doing so may help to eliminate any blindspots caused by simply transferring a model of human personality to a non-human context.

Second, the definitions accompanying traits on a rating questionnaire can either be phrased in terms of species-specific behaviors or using typical dictionary definitions. The latter, trait-adjectives, facilitate cross-species comparisons, as these standardized definitions maintain uniformity across species. However, as these traits are defined in terms of their meaning for humans, they are likely to be interpreted by raters as such. This means that raters may ignore potentially important aspects of species-specific traits which may not be represented in the vocabulary of human languages (Uher, 2008). One alternative reduces this bias by adapting trait-adjectives to a focal species through definitions phrased in terms of species-specific behaviors (e.g. aggressive: frequently bites or hits other animals; Uher, 2008). In support of this behavior-descriptive approach, associations between behavior and ratings of behavior-descriptive terms are stronger than those between behavior and trait-adjectives.

Conclusions

The use of trait rating and behavioral coding has surged with increased acceptance of animal personality as a valid area of study. Clearly there are advantages and disadvantages to both major methods of data collection. Given these almost benefits and drawbacks for each method, a growing number of personality researchers advocate the use of multiple methodologies. It is expected that if different methods are measuring the same underlying personality constructs, results produced from each method should correspond to some extent (Weiss & Adams, 2013). For example, African elephants rated as highly Playful also tended to score highly on the behaviorally coded Playful trait (Horback et al., 2013), thus providing stronger evidence for an elephant Playful trait. Such multi-method approaches are therefore likely to provide the most comprehensive picture of animal personality, as well as help to improve our understanding of what is actually being measured by each method. Using methodological combinations alongside cross-species comparisons allows questions to be asked about not only the evolutionary origins of individual personality traits, but also their organization in broader frameworks of personality.

See Also

Evolutionary Theory of Personality
Experimental Approaches
FFM and facets

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Physical and Virtual Spaces

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Physical and virtual spaces research refers to the study of how individual differences manifest in both physical and virtual environments. Researchers theorize that individuals communicate core aspects of their personality, such as preferences, values, attitudes, and goals, through what they make present, either intentionally or as a result of their behaviors, in both the physical and online environments they create. Further, researchers posit that these manifestations are also communicated to others. There is evidence suggesting that observers form impressions of the individual's personality based upon the space they inhabit.

Historically, this work centered on the area of physical spaces and possessions, with a particular focus on individuals' bedrooms and offices. Theoretically, three mechanisms have been proposed to explain how individuals directly affect physical spaces (Graham, Sandy, & Gosling, 2011). These mechanisms – identity claims, thought and feeling regulators, and behavioral residue – have varied purposes and provide different information about the individual occupying a particular space.

Identity claims are direct and intentional statements intended to communicate key aspects of one's personality. Such claims most often utilize symbols, terminology, and themes that are common to the social vernacular and are thereby easily understood by the intended audience. The degree to which one communicates such messages, as well as the intentionality of the communication, varies. Further, the content expressed and message of delivery may change based upon the individual's intended audience. For example, one may choose to express different claims socially versus professionally (Graham et al., 2011).

Thought and feeling regulators refer to aspects of the environment that are manipulated by an individual to make the environment more conducive to certain activities or emotional states. Thought and feeling regulators can communicate messages regarding an individual's personality, although they are intended to serve the desires of the individual with respect to his or her cognitive and emotional needs (Graham et al., 2011).

Behavioral residue consists of changes in the environment that occur as the result of how people behave in or engage with that environment. It is what is "left behind" in a space

after a person has occupied it. A person's behavior, whether unique to the moment, habitual, or patterned, leaves evidence of the individual's action or inaction within a space (Graham et al., 2011).

Physical Spaces

Physical space may constitute a number of locations and is a construct broad in range and subjective in meaning. In order to operationalize a term more suited for research, Gosling and colleagues coined the phrase "personal living space" (PLS). PLS refers to an individual's space within a space, meaning any area which a person regularly inhabits and that is understood by others to be the assigned space of that individual. PLSs include a wide variety of spaces, such as a cubicle within an office, a dorm room, or a prison cell. Much of the research on PLSs relies on self-report and, in some cases, on photographs of the PLS of interest. Gosling, Craik, Martin, and Pryor (2005) developed the Personal Living Space Cue Inventory as an attempt to standardize the measurement of valid cues detected by PLS observers; however, this method proved both costly and time consuming.

Researchers studying manifestations of traits in physical spaces commonly assess individual differences using the Five Factor Model of personality (the Big Five), with all five traits being discernibly present in PLSs (see Graham et al., 2011, for a review). For example, studies indicate that those high in openness often display a wide range of interests within their space, particularly items such as books, magazines, photos, and souvenirs that denote diverse interests. Additionally, and consistent with behavioral residue research, those who are highly conscientious are more likely to have spaces that are well organized and clear of clutter (Gosling, Ko, Mannarelli, & Morris, 2002). When assessing one's PLS, there is also evidence to suggest that, with some accuracy, observers are able to form impressions of the owner of the space. This is particularly true when observers utilize valid cues to form the basis of their assessment on the traits of extraversion, openness, and conscientiousness (Gosling et al., 2002).

Unlike PLS, research on the communication of individual differences through one's possessions lacks cohesion with respect to both the definition and categorization of the individual's personal items, making research in this area markedly difficult. Although there does not appear to be a common definition to operationalize "possessions," the three most prominent types of belongings discussed in the literature are cars, consumer goods, and objects in which people place personal value. Such research also lacks a consistent means of categorizing possessions; however, past studies have done so by price, symbolic or sentimental value, and utility. Further, although there is often overlap in terms of identity claims, possession research also includes items found outside of one's PLS (see Graham et al., 2011, for a review).

Whereas PLS research commonly utilizes the Big Five to examine individual differences, possession researchers commonly focus on behaviors surrounding the purchase of items, patterns of consumption, and individuals' needs as motivators of consumer behaviors (see Graham et al., 2011, for a review). Early work in individual differences and possession research included the work of Allen L. Edwards, who developed the Edwards Personal Preference Schedule (EPPS) in 1959. Utilizing Henry Murray's theory of psychological

needs, the EPPS is commonly used to help determine the relation between individuals' needs and brand preferences. Other personality measures utilized in possession research include the Thurstone Temperament Schedule (1950), the Gordon Personality Profile (1953), and Jackson's Personality Research Form (1967). Findings indicate that those who are highly agentic endorse a desire for more instrumental possessions, whereas those who are more communal place more value on symbolic possessions. With respect to gender differences, there is some research to indicate that men value items that are instrumental, such as sporting goods and tools, whereas women place greater value in shared experiences or items that represent these experiences, such as coffee (see Graham et al., 2011, for a review).

Virtual Spaces

With the advent and pervasive reach of the Internet, PLS research has expanded to include the spaces individuals create and inhabit online. Online social networks (OSNs), massive multiplayer online role-playing games (MMORPGs), personal websites, electronic communication, and blogs now provide individuals with opportunities for self-expression through the use of written content, media and picture sharing, and virtual avatars, which are the subdomains of virtual space most commonly researched (e.g., Back et al., 2010; Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011; Vazire & Gosling, 2004).

As with research on physical spaces, the Big Five is the most common assessment tool to detect manifestations of individual differences in the virtual world, with at least some traits being found in each of the above subdomains. Consistent with PLS research, the Big Five has also been used to test the accuracy of observers' perceptions of users' personality traits when assessing content shared by others. Much of the current virtual space research focuses on Facebook. Research indicates that those high in openness and extraversion appear to "like" a broad range of interests, are involved in a number of and variety of "groups," and have a higher number of friends/followers than their introverted counterparts. Further, there is evidence to suggest that observers may be able to accurately perceive conscientiousness and agreeableness, simply by viewing the Facebook pages of those scoring high on these traits. Similar findings have been shown for personal web pages (e.g., Back et al., 2010; Gosling, Augustine, Vazire, Holtzman, & Gaddis, 2011; Vazire & Gosling, 2004).

Studies focusing on writing styles, affect, and word-use frequency show evidence of individual differences in blogs. In general, researchers have found that those high in neuroticism were more likely to make personal references and choose negative words with greater frequency; conversely, authors higher in agreeableness and extraversion were more likely to employ positive word choices and prosocial language. Self-selected email addresses also communicate individual differences. For example, people scoring low on agreeableness are more likely to have email addresses that are self-promoting (Graham, Sandy, & Gosling, 2015). Conversely, research conducted to determine if the same holds true for MMPORG screennames, particularly those of World of Warcraft users, indicates that a player's choice of screenname does not appear to relate to the Big Five personality traits (Graham & Gosling, 2012).

Limitations and Future Directions

With regard to physical and virtual space research, there is little continuity in how such spaces are defined, which measures of individual differences are used, or how data is gathered. As indicated earlier, the Big Five appears to be the most commonly used assessment tool in the PLS and virtual space literature; however, it is seldom used in research regarding possessions, which are, arguably, an important part of what comprises PLSs. The application of this method to possession research may allow for trends in individual differences, as expressed through possessions, to emerge. Conversely, research in this field would benefit from the use of additional measures beyond the Big Five in order to capture additional traits such as narcissism, self-efficacy, and shyness. Further, much of the current literature relies heavily on participant self-report, which may result in less reliable data. Developing additional means of data collection, particularly methods that can be standardized, may result in increased reliability, as well as an increased ability to generalize findings to larger populations (see Graham et al., 2011).

Among those who study virtual and physical spaces, there is a call for research regarding the home environment as a whole (Graham, Gosling, & Travis, 2015). Researchers argue that there is still much to be learned about both how PLS may differ across rooms and the ways in which individuals value and utilize their communal space as a whole. Principal investigators cite the need for further investigation of several areas of ambience that are both spatially influenced and that influence those within a given space. Such research would not only look at how individuals are impacted by their PLS and how messages are communicated to others through their PLS, but it would also examine the interplay of the PLS of all inhabitants within a home and how the ambient themes of each PLS serve to impact individuals.

Finally, an important future direction for PLS and virtual space research includes a look at cross-cultural individual differences (e.g., Gosling et al., 2005). Although there are some studies that discuss differences by gender, to date, researchers have paid little attention to differences between Eurocentric and other cultures, age groups, or individualistic and collectivist cultures.

See Also

Revised NEO-Personality Inventory (NEO-PI-R)

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Psychobiography and Case Study Methods

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Psychobiography

The aim of psychobiography is to understand individuals. Psychobiography is neither a case analysis, which focuses on pathology, nor is it biography, which focuses on the "what" of a person's life. Psychobiography applies psychology to single cases, to individual lives, to understand motives of behavior, the "why" of that person's life. Psychobiography is the explanation of a person's life story.

Classic Contributions to Psychobiography

Sigmund Freud is probably the first person to apply this approach when he wrote his analysis of Leonardo da Vinci in 1910 and then later his book *Moses and Monotheism* in 1939 (which was reprinted in 1964). During the early part of the twentieth century, psychoanalysts wrote many psychobiographies. Among these are analyses of Shakespeare as revealed through Hamlet, Richard Wagner, the artist Giovanni Segantini, Amenhotep IV, Martin Luther, and Socrates. Some of the other research on notable individuals would include Catherine Cox's study in 1926, supervised by Lewis Terman, to estimate *The Early Mental Traits of 300 Geniuses*. Among these early psychobiographies were studies of Hitler, Herman Melville, and Gandhi. There were also psychological interpretations written of Goethe, Vincent Van Gogh, Shakespeare, Emily Dickinson, Henry James, and Dostoevsky. This study of individuals, for the most part, took place up through the late 1930s but then, with the advent of the 1950s and 1960s, focus shifted to psychometrics and the superiority of experimental methods. Ironically, in one of the foremost early texts of experimental psychology, Woodworth (1938) defined psychology as the "scientific study of the activities of the individual … psychology takes the individual as a whole, and describes his activities" (p. 3). This very much sounds like a call for psychobiography.

For Murray, the life history of the individual was the unit of study that psychologists needed to concern themselves. Murray believed that mainstream psychologists of his time were overly concerned with the periphery of sensations and perceptions that added nothing to the knowledge-base of human understanding. Murray was focused on understanding the emotions, feelings, purposive intentions and drives of the individual. For him, this was personality psychology. It was this focus on the study of the individual that eventually prevented Murray from attaining tenure while at Harvard. Murray, in his 1938 text, *Explorations in Personality*, stated that the portrait of a personality was a biography since the notion was generally accepted that the history of the personality is the personality.

Contemporary Contributions to Psychobiography

In 2013, Runyan wrote a chapter on psychobiography and statistics. In this work, Runyan discussed some of the recent works that he felt excelled and which included discussions of individual psychobiography with relevant social, cultural, and historical contexts. Among these notable works is *The Handbook of Psychobiography* by Schultz (2005) which included psychobiographies of psychologists such as Freud, Gordon Allport, Erik Erikson, and S. S. Stevens (founder of Harvard's Psycho-Acoustic Laboratory). It also has sections on "Psychobiographies of Artists" which included Elvis Presley, Sylvia Plath, J. M. Barrie, and Edith Wharton. Political figures, such as Osama Bin Laden, Saddam Hussein, and George Bush, were discussed. It also included other personalities such as Jack Kerouac, Truman Capote, and Diane Arbus. This is an exceptionally readable handbook with insights offered as to how psychobiography can be done more soundly, more perceptively, and more valuably.

William Todd Schultz is a leader in the areas of psychobiography who both edited and contributed to the 2005 Oxford Press edition of *The Handbook of Psychobiography*. In this text, Schultz stated that "One seeking mind, armed with theory and research, directed at the details of another – that is psychobiography....It puts the person back where she should be in personality: front and center, the most moving target imaginable" (p. 3). Schultz goes on to say that there are really two reasons that psychologists should pursue psychobiographies: (1) to clearly know another person and (2) to know ourselves. He asserts that psychobiographies produce hypotheses and insights which can then go on to be tested against other larger groups of people. It is from the study of these single lives that the impetus for inferential research can arise. Just as the single case in neuroscience spurs inquiry, so too can the single case in psychobiography.

The hunches and insights produced by psychobiographies lead to theories and hypotheses which in time can then be formally tested in personality psychology. Psychology began this way with Freud, Jung, Piaget, Maslow, Murray, Allport, and others examining individual lives and in turn devising theories that were applicable to all people.

Characteristics Features of Good Psychobiography

So what makes good psychobiography? According to Schultz (2005), the markers of good psychobiography include cogency, narrative structure, comprehensiveness, data convergence, sudden coherence (where interpretation brings the initially incoherent into coherence), logical

soundness, consistency, and viability. Within the narrative itself, conclusions follow naturally from the presentation of the data. The data comes from multiples sources and converges, triangulates, to support and illuminate central ideas. The narrative is free of contradictory explanations and illogical conclusions. The conclusions fit with the data, and at its best, offer elucidation where there was none. The hypotheses can be held to the light of falsification and stand true. The best psychobiographies leave the reader feeling won over, persuaded by the presentation of the narrative. In addition, the suppositions fit with the general knowledge supplied by more experimental personality psychology. This is what draws nearly every psychologist to the field: people and the understanding of what makes people tick. This is not to say that other forms of research in personality psychology are wrong or should be avoided, but that personology is one legitimate form of developing an understanding of personality, one of the central objectives of personality psychology.

Prior to beginning one's own writing, the methodology of psychobiographical research should be investigated. Some of the classic as well as more recent psychobiographies should be read. While the classic psychobiographies often are considered flawed because of author bias and the lack of rigorous research methods, they will still have much to teach you. Freud's profile of da Vinci would be a good choice here. Erickson's work on Luther and his work on Gandhi, which won a Pulitzer Prize in 1970, would be exemplary recent examples.

Case Study Method

Psychobiographies are just one type of case study. Case studies have been both a teaching tool and a research methodology – two very separate and distinct applications. Case study *research* has its own design, methods, and analytical techniques. It can focus on a single individual, a group, organization, or institution. The subject of the case study in psychology is often an individual, whereas outside of psychology you are more apt to see the subject be an organization, group, or institution. It focuses on *individual data*, however, as opposed to grouped data and is limited by the inability of the researcher to manipulate variables.

Case study research in psychology has three distinct qualities (Yin, 2014): making an in-depth inquiry, studying conditions over time, and covering contextual conditions. This third quality, contextual conditions, is actually one of the strengths of this type of research. To fully understand the subject of study, you need to understand the contextual issues surrounding it. Consider the psychobiography. It is important to examine the friends, community, work, family, and cultural contexts in which this individual's life is embedded. As you contemplate these real-life concerns, they will not all fall into easy categories. This blurring of categories, and blurring between your subject and their world, is another strength of case study research (Yin, 2014) and may provide new insights that were never anticipated. The reasons psychologists use case study methods fall into three categories: description, explanation, and evaluation (Small Group Instructional Diagnosis would be a type of evaluative case study). When case study research is done correctly (using protocols, and triangulating data, and increasing reliability through use of databases and a chain of evidence) it is rigorous and demands a great deal of effort. Done correctly, it is a very powerful tool.

To be exemplary, a case study must be well defined and avoid artificially controlled non-research constraints. If you do not have the time or money for this, limit your design from the outset. Be sure that your data collection process is complete. Continue to gather and analyze data until you reach a saturation point where new insights are no longer being identified.

While analyzing data, rival explanations must be considered. The research must clearly show that all evidence was considered, not just the evidence that supported the initial point of view. At the same time, avoid allowing the pressure of the volume of data to try to make one's case. Be clear on the validating steps taken, without belaboring the issue. One needs to be concise, parsimonious, and still entice the reader to continue reading. This takes talent, and numerous rewrites. If one can balance the skills of the scientist *and* the novelist, one will have been successful.

Summary Evaluation of the Psychobiography and Case Study Methods

Strengths

For these two approaches to studying personality, the primary strengths are those of depth and uniqueness. By utilizing psychobiography, we can undergo an in depth study of a single individual or case – a major strength of these approaches. It allows us to examine individual differences, to understand the impact of context, and to examine in-depth the patterns of behavior within an individual across time. Another advantage with the case study and psychobiographical approaches is that it allows us to study cases and events that are rare. Some events are so rare, such as the survival of Elisabeth Fritzl or the cannibalistic murders of Jeffrey Dahmer, that they *must* be studied when they do occur, and in as much depth as possible.

Limitations

The primary limitations of these approaches are those of generalizability and bias. While it is certainly true that you cannot generalize from the psychobiography of the individual to the general public, it is equally true that you cannot generalize from the nomothetic research to understand the uniqueness of the individual. As long as the researcher and the reader keep in mind the purpose for each approach, it does not have to be considered an insurmountable limitation.

Bias potentially comes from two directions: researcher bias and subject bias. Researcher bias is the tendency for the scientist to gather and interpret data in a way that is consistent with their assumptions. For example, when studying the personalities of the presidential candidates, a researcher who adheres to Adler's birth order theory, may place undue emphasis on the candidates' birth order. Subject bias, on the other hand, is where the individual being interviewed or surveyed may distort the information by either intentionally withholding or skewing information, perhaps out of embarrassment, or by trying, either intentionally or subconsciously, to "fill in the gaps" of distant events.

Conclusion

By investigating individuals in personal, in-depth detail to achieve a unique understanding of them, these idiographic approaches to personality study (psychobiography and case study methods) can make unique and valuable contributions to our understanding of personality.

See Also

Historiometry
Idiographic vs. Nomothetic Research
Personal Narratives

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Factor Analysis in Personality Research

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Factor analysis is a statistical technique that simplifies data while investigating the relationships between several variables and attempts to determine whether a pattern of correlation between a number of variables can be explained by underlying dimensions, known as factors. Factor analysis can be used for scale/questionnaire construction, scale/questionnaire verification, and examining the structure of a psychological construct.

The first step in factor analysis is creating a correlational matrix for each variable, that summarizes the correlational coefficients for all variables. Second, the matrix needs to be examined for any patterns that may emerge which is done through the use of a statistical package. When a potential factor is identified, the next step is to compute a correlation between each identified factor and each of the original variables. Variables with the highest factor loading have the strongest association with the factor and play a larger role in defining the factor's dimensionality. Lastly, the final step is to name the factors.

Factor analysis concisely describes large amounts of data by summarizing the correlational relationships between and among many variables simultaneously (Goldberg & Digiman, 1994). By doing so, relationships and patterns are easily interpreted and understood. This can be employed to confirm a hypothesis through Confirmatory Factor Analysis or to reveal insights into the factors through Exploratory Factor Analysis that had not previously been considered. Exploratory Factor Analysis allows multiple perspectives to be considered which may aid in establishing the underlying structure that best explains the underlying factor.

Factor analysis has allowed personality psychology researchers to develop a deeper understanding of difficult-to-measure constructs leading to developments in theories of personality. Factor analysis originated with Charles Spearman's attempts to develop a theory of intelligence; Spearman's bi-factor model of intelligence stated that mental ability was determined by the g-factor, a factor of general ability, and an s-factor, a specific component of variation suited to each assessment (Spearman, 1904, 1927.) Multiple factor analysis developed as it became apparent that a bi-factor theory was not suitable to describe a

battery of psychological tests, which led to a blossoming of work on theories and mathematical principles in which Spearman's bi-factor theory was discarded and the development of multiple factor analysis (Harman, 1976.) Multiple factor analysis expanded upon Spearman's design by allowing multiple factors to be considered simultaneously using the same methodology of selecting highly correlated variables to be identified as a factor.

In personality psychology, factor analysis is most notably used in the development of personality theories. Typically, personality theories are developed using the lexical approach. The lexical approach creates natural descriptors and a standard vocabulary to describe varying dimensions of personality (John, 1990). Gordon Allport began developing a list of lexical personality and trait descriptors in 1936, which predisposed personality psychology toward a lexical approach in describing personality dimensions. Raymond Cattell (1950) built upon the previous work of Allport, distinguishing between surface traits, characteristics that are observed in a given situation and source traits, underlying factors which determine surface responses. Cattell gathered a large variety of data such as life records (L-data), self-report questionnaires (Q-data), and projective tests (T-data.) Cattell then established an intercorrelational matrix which summarized how strongly each variable was correlated with every other variable. At this juncture, Cattell identified potential clusters of variables that may be potential factors, identified as source traits, in Cattell's theory. Potential clusters of variables are identified by their factor loading, which is calculated with the aid of a computer and a statistical software package. The magnitude of the factor loading determines how strongly associated a variable is associated with a factor. Finally, Cattell identified 16 factors, source traits, that he considered fundamental to personality (1966) and used them as the basis for of his Sixteen Personality Factor Questionnaire (16PF).

Cattell's theory of personality provided the necessary theoretical underpinnings for the development of the popular Five Factor personality theory, colloquially known as the Big Five (McCrae and Costa, 1987, John 1990). While there is agreement that there are five dimensions shaping human personality, there is still some debate on the nature of the dimensions. The most commonly agreed-upon factors are Neuroticism, Extraversion, Openness, Agreeableness, and Conscientiousness. It should be noted that scholars do not always use the same terms either. The Big Five originated from two separate approaches to identify basic factors in personality. One approach was the lexical approach that has been replicated across different languages such as Japanese, Chinese,and German (Digman, 1990). The other approach employed the use of factor analysis of personality questionnaires, which led to an explanatory hypothesis, the Five Factor Model (FFM) about dispositional traits that are inherited (John & Robins, 1993). While both utilize different approaches, they both support five factors of personality; but the FFM attempts to advance interpretation regarding the traits of the Big Five (McCrae & Costa 1987) whereas the Big Five merely provides a description. However, the FFM asserts that personality can be described in terms of five broad categories in terms of scores on the measure of the broad category and that differences among people in these dimensions are stable over time partially due to a genetic basis and in part to an internal mechanism, not yet known.

Factor analysis is used extensively by personality psychologists as a research tool. It is used in at least four related ways: as a data reduction technique, as an exploratory technique to examine the underlying structure of correlated data, as a confirmatory hypothesis-testing tool, and is also used to summarize the relationships of multiple correlated variables.

See Also

Adler Individual Psychology
Cattell Trait Theory Lexical Analysis
Raymond B. Cattell

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Meta-analysis in Personality Research

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Meta-analysis is a form of systematic review in which the results of multiple individual studies are combined to estimate the summary effect size for the relationship in question. To calculate the summary effect size, researchers find a weighted mean of effect sizes across all studies included in the meta-analysis. How the weighted mean is calculated depends on factors such as characteristics of or assumptions about the collection of studies. Though some work with combining results had been done in prior decades, meta-analysis took off in earnest in the 1970s. Gene V. Glass (1976) introduced the term "meta-analysis" into the research lexicon, and he and his colleague Mary Lee Smith (1977) published a meta-analysis that found that psychotherapy is indeed effective. In the following decade, Larry V. Hedges and Ingram Olkin (1985) published a book on meta-analysis that formalized the statistical methods, as well as providing a foundation for advances that have come since. Since the 1970s, meta-analysis has become an increasingly common form of analysis.

Meta-analysis is a useful form of analysis because it can be used to answer questions about the relationship between variables such as whether or not an effect exists and the magnitude of the effect. Knowing the effect size can be more important than determining if the effect is statistically significant. Researchers may come across studies where the results contradict one another, often because the modal sample sizes are small in many studies. A comprehensive meta-analysis of an area of interest may help to overcome the variability that comes with highly variable, single studies. Meta-analysis may also be used to answer more complicated questions, such as how the results of a given study can be understood within the area of interest. The meta-analytic results may suggest a consistency (or lack thereof) among the studies; if there is consistency, then one can accurately estimate the effect size, but if there is inconsistency, one can look at the variation and seek to further understand possible sources of the variation. Additionally, meta-analysis may be used to test a hypothesis, similar to what the individual studies themselves are doing.

Conducting a Meta-analysis

Meta-analysis is a multi-step process. Researchers start by specifying their research question as clearly as possible, as a means of guiding themselves through the rest of the meta-analytic process. Once the area of study has been clarified as fully as possible, the next step consists of searching the literature for relevant studies. This search should be as thorough as possible, including both published and unpublished research, from a variety of sources, not just electronic databases. Once they feel they have exhausted their literature search, researchers can begin coding, or documenting information about, the studies they have collected. Two types of information are coded for each study: (1) moderators, or characteristics of the study, and (2) effect sizes, or the study's findings. Moderators may come in many forms and depend on the nature of the area under study; they may include information about the sample (e.g. gender, clinical vs. nonclinical), information about the study (e.g. quality of the study, type of intervention), or information about the variables under investigation (e.g. the measure used to assess the variable). The collection of studies should be coded independently by multiple individuals to ensure greater reliability. Following coding comes data analysis. A wide variety of statistics will be found in the collection of studies, including, but not limited to, standardized mean differences, odds ratios, and correlation coefficients; these can be converted from one to another to derive a single common effect size. Researchers calculate the weighted mean effect size and distribution; depending on the nature of the studies included in the meta-analysis, researchers may make different assumptions about the effect size and heterogeneity, which guides the choice of model (fixed-effect, random-effects, or mixed-effects) for calculating meta-analytic statistics. Additionally, prior to computing the mean effect size, the individual effect sizes may be corrected for bias. After completion of data analysis, researchers present their findings in a report.

Interpreting the Meta-analysis

Effect size is the favored metric used by researchers when conducting meta-analysis; it indicates the magnitude and direction of the relationship between two variables. They can be divided into three categories: (1) correlations, such as the Pearson correlation coefficient r; (2) mean differences, either raw (D) or standardized (d or g), and (3) contingencies, such as odds ratios or risk ratios. The choice of effect size used in a given meta-analysis depends on what type of relationship is being assessed. When coding the collected studies, researchers will find that the results will contain a variety of types of statistics that are not the effect size of choice for the meta-analysis, such as means, chi-square statistics, t-tests, and F-tests, as well as other types of effect sizes. Regardless of the type of results presented, they can be converted to a common effect size so the results from multiple studies can be combined, or an effect size should be chosen such that it can be calculated from the information present. Effect sizes can also be calculated from p-values if the authors have provided the exact p-values associated with a finding.

   Prior to combining the effect sizes calculated from the studies being used, researchers may consider corrections to them for various reasons. Differences in research design may affect the magnitude of the effect size, and type of research design could be used as a

moderator. Additionally, if multiple effect sizes from one study are being included, non-independence of these estimates may be an issue; to alleviate this, researchers may choose a single effect size randomly from these studies for inclusion in the overall effect size. Also, there may be concerns associated with measurement or statistical analyses, such as sampling error, unreliability, range restriction, or dichotomization of continuous variables, which may result in a lower effect size. Proponents of effect size correction argue that those procedures give a more accurate estimate of the true effect size. Opponents to correction, such as Rosenthal (1991), argue that correction prevents researchers from learning what the relationship between two variables is in practice, rather than what it might be in an ideal world.

When calculating the statistics associated with a meta-analysis, researchers may use one of three models: a fixed-effect model, a random-effects model, or a mixed-effects model, depending on their assumptions about the relationship being studied. A fixed-effect model assumes one true effect size for the set of studies collected; any differences among studies are due to sampling error. Because the true effect sizes across studies are assumed to be equal, they are considered homogeneous. However, in other cases, the true effect sizes are heterogeneous, i.e. they are not equal to one another. There may be moderators that influence the effect sizes, in which case a fixed-effect model with moderators may be appropriate. A random-effects model may also be used when heterogeneity is indicated. A random-effects model assumes a distribution of true effect sizes; the calculated mean is an estimation of the mean of this distribution, and the variance indicates the amount of random heterogeneity. Another option is a mixed-effects model, where differences in the true effect sizes are due to both moderators and random heterogeneity.

To test for heterogeneity, researchers may compute the Q-statistic. Q uses the chi-square distribution with $k - 1$ degrees of freedom, where k is the number of studies included in the meta-analysis; if Q is larger than the critical value according to this distribution, it is indicative of the presence of heterogeneity, though not the magnitude. To determine the amount of heterogeneity present, one may calculate I^2, the ratio of between-study variability of effect sizes to total variability of effect sizes, calculated as a percentage.

Some Concerns with Meta-analysis

Publication bias is a concern for meta-analysts, as studies with large effect sizes are more likely to be published than studies with small effect sizes, and any such bias will be reflected in the results of the meta-analysis. To combat the potential effects of this bias on the results of the meta-analysis, a comprehensive search of the field's literature is necessary, including both published and unpublished studies.

To further address concerns about the inclusion of biased studies, researchers may also look for evidence of bias, using methods such as funnel plots. A funnel plot is a scatter plot where studies' sample size and effect size are plotted against one another; the expectation is that small studies will have a wide range of effect sizes, and as the sample size increases, the variation in effect sizes will decrease, clustering around the estimated mean effect size and resulting in a funnel-shaped graph. If the funnel is symmetric, that provides evidence for a lack of publication bias; if the funnel is asymmetric, there are

likely studies missing, most likely small studies with null results or results contrary to what the researchers hypothesized.

A formal technique of testing whether the funnel plot is symmetrical is the trim-and-fill test (Duval & Tweedie, 2000), which consists of two steps and uses the funnel plot. In the first step, researchers "trim" the studies that contribute to the asymmetry of the funnel plot and find the center of the trimmed funnel plot. In the second step, the trimmed studies are reintroduced to the funnel plot, along with the imputed values of the missing studies, around the center; the mean effect size is calculated from the filled funnel plot. This procedure can result in more accurate estimates of both the mean effect size and heterogeneity.

The Egger test (Egger, Smith, Schneider, & Minder, 1997) also tests the asymmetry of the funnel plot using a linear regression equation. The standard normal deviate (SND) is calculated by dividing the effect size by its standard error (ES/SE), and the precision is calculated as the inverse of the standard error (1/SE). The SND is regressed onto the precision (SND = β_0 + β_1(precision)). If there is no asymmetry in the funnel plot, the regression line will run through the origin when the standard normal deviate equals zero. If asymmetry exists, the regression line will not run through the origin. β_0 acts as a measure of asymmetry. If there is none, β_0 equals zero; if asymmetry exists, β_0 does not equal zero, and a greater value indicates greater asymmetry. β_1 provides an indication of the size and direction of the effect.

See Also

Replication Research

Size Effects in Personality Research

Theoretical and Methodological Issues in Personality Research, General Concerns and Considerations

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Multiple Regression in Personality Research

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Introduction

Multiple regression or multiple linear regression (MLR) is a general statistical method to examine causative relationships between a dependent (criterion) and a set of independent (predictor) variables. Its main function is prediction. It determines which independent variables are significant predictors. The adjective "multiple" denotes that there could be two or more predictors. In psychological research work, especially personality-social related areas, there is more than one possible variable determining psychological outcomes. Personality variables such as personality traits and other categories of individual differences are commonly involved in explaining human thoughts, feeling, and behavior. Since prediction is pivotal in personality work, multiple linear regression is basically the most common and unavoidable form of analysis in personality and individual differences research.

In this section, a brief explanation of the following is covered: the basic principle of MLR, how to conduct the analyses, the multicollinearity issue, and the MLR application in the study of personality and social context. Toward the end of this section, future direction of the MLR in research, theory and methodology is briefly mentioned.

Basic Principle of MLR

The basic principle of MLR in social-personality research is to predict effects or impacts of change observed in the dependent variable caused by independent variables. Thus, MLR is used to predict pattern of changes – for instance, will there be any personality trait or state changes after six months of marriage or after undergoing military training for more than one year?

To begin the analyses, the existence of linear association between the independent and dependent variables must first be established. If they are linearly related, each independent

variable's predictive strength and direction would then be analyzed. This association is in the form of prediction – usually presented in the following equation:

$$y_i = \beta_0 + \beta_1 x1,I + \beta_2 x2,I + \cdots + \beta_k xk,i + ei,$$

where y_i is the dependent variable and $x1$, $x2$, i, ... , xk, i are the k predictor variables. Each of the predictor variables must be numerical or quantitative. In personality research, it may come in the form of mean scores of latent variables. The magnitude of coefficients $\beta_1, \beta_2, ..., \beta_k$ represent the strength of the Coefficient of Determination or measure of the predictive power of the independent variables. The sign (+ or –) of β indicates the direction of the relationship whether positive or negative. In every analysis, the objective is to get the best fit regression equation. Model fit is important – adding relevant independent variables will always increase its statistical validity – it will always explain a bit more variance (expressed by R^2). This equation can be used to predict the value of target variables based on given predictor variables.

Procedure of Using Multiple Regression

Multiple linear regression analysis is done through sequential stages. According to Hair et al (2018), there are six stages to follow in the MLR analysis.

1 Setting the Objectives of the Analysis

This is the initial step during data analysis where the research problem is determined. If the research problems and objectives are to identify potential predictors among independent variables on dependent variable, then MLR is the right data analytical tool. In most analyses, the attempt is to maximize the predictive power of a set of independent variables upon dependent variables. Selection of the dependent and independent variables included in the prediction should be based on sound theoretical considerations.

2 Designing Research of the Analysis

The next step is to determine the nature of independent variables and sample size. Sample size is considered most important since it will have an effect on statistical power and accuracy of the significant testing. Small sample size (i.e. $N < 20$) may be more appropriate for simple regression analyses. It is recommended to identify the optimum sample size which is most effective (Pituch & Stevens, 2016) for getting reliable results.

3 Assumptions of the Analysis

Several assumptions must be met for both independent and dependent variables prior to the analysis.

a) Both independent and dependent variables are of quantitative or continuous variables.
b) Linearity – the relationships between the independent and dependent variables should be linear.

c) Normality – data must be normally distributed. If data is not normal, a non-linear transformation such as log-transformation can be imposed although transformation can also introduce effects of multicollinearity. Linear regression is very sensitive to outliers. It can have a significant impact on the regression line and eventually the forecasted values.

d) Independence – predictors should not be associated with each other, thus, multicollinearity should be minimal or absent.

4 Estimating the Regression Model and Assessing Overall Model Fit

To get the best estimation of the regression model, the method of data selection should be selected either using a forward or backward elimination, a trial-and-error estimation procedure, or a stepwise estimation. Then, the statistical significance of the overall model in predicting the dependent variable is determined – finding the best estimates of the coefficients is often called "fitting" the model to the data.

5 Interpreting the Regression Variates

The output of the analyses normally consists of the coefficient of estimates, R and R square values, standard errors, and also β coefficients. Estimates of each β coefficient and its "standard error" are used to calculate values for each observation and to express the expected change in the dependent variable for each unit change in the independent variables. Beta coefficients are used as a guide to the relative importance of individual independent variables in the model.

6 Validation of Results

This is the final stage of the regression analysis in which the generalizability and predicting ability of the model are re-tested. A new sample can be taken to test whether the outputs represent the general population (generalizability) and its appropriateness for the situations (predicting ability). In addition, we should also look at the matching and relevance of the data with the existing theoretical model or a set of previously validated results on the same topic.

Multicollinearity

One of the challenges to provide best estimation using MLR is multicollinearity. Multicollinearity exists whenever two or more predictors are moderately or highly correlated in a regression model. It is indicated by the value of correlation between two variables surpasses 0.80 (Hair, 2018). Such a problem might be due to data problems, not a problem of model specification. It has a substantial effect on the results of regression model since it will not be possible to separate the effects of these two predictors. One of the tests to assess the existence of multicollinearity is the variance inflation factor (VIF). VIF is the variance inflation factor of the linear regression defined as $VIF = 1/T$. The smaller the value of VIF, the less likely data has multicollinearity. On the other hand, if VIF is bigger than 10, there is an indication for multicollinearity to be present.

The Major Uses of MLR in Personality Research

Three major uses for multiple linear regression analysis are (1) causal analysis, (2) predicting an effect, and (3) trend forecasting.

First, causal analysis normally uses the MLR to determine the predictive strength of the independent variables. For example, Sorokowska et al. (2016) found that social exhibitionism and extraversion predicted the frequency of online selfie-posting in men and women. In another study, Malesza and Ostaszewski (2016) discovered two dark personality traits, narcissism and psychopathy, as significant predictors of adolescent risk behaviors.

Second, MLR can be used to predict effects or impacts of changes. Matz, Gladstone, and Stillwell's recent work (2016) on the impact of personality traits on achieving happiness found that whenever one's personality trait is matched with the pattern of spending money, happiness and positive affects increase.

Third, multiple linear regression analysis predicts trends and future values. The study by Sobrinho et al. (2016) on predicting suicidality is a good example. They found that perceived parental rejection demonstrated direct and indirect relationships with suicidality, and self-criticism and neediness each had indirect associations with suicidality in a five-month period.

Current Use of Multiple Linear Regression in Research

Use of MLR in personality research has been continuously increasing. In November 2019 a search via the SCOPUS data base was made, to date, more than 244,738 studies used MLR in various fields including 20,721 studies in psychological fields (of which 8,589 articles are in the personality research area). Since 1980, 189,602 articles in the Web of Science data base used MLR, 7,862 in psychiatry and 2,519 in psychology. These data indicate that multiple regression has been widely used in personality research as well as in other areas of studies.

Since the basic principle of MLR is to predict changes in the dependent criterion affected by several independent variables, the use of this principle has also been extended to more advanced analytical methods. Its predictive function allows flexibility of MLR in different analysis procedures such as in mediation and moderation analysis. It is also used in structural equation modeling (SEM) and hierarchical linear modeling (HLM) or multilevel modeling (MLM) which adopt the predictive function of MLR in different forms. In MLM, for example, effects of independent variables are examined on two or more different levels, intra/within and inter/between individual.

Future Use of MLR

Multiple regression analysis continues to be an important tool for modeling and analyzing data. To date, the use of the analyses has been extended in much personality and individual research, notifying the fundamental role and predictive utility of MLR.

Given the flexibility of the multiple regression and its relative simplicity, it is predicted that the use of multiple regression analysis in personality research will continuously increase – despite the emergence of many advanced and highly complicated data analyses techniques – in the long quest to understand human individual differences and functioning through the study of personality.

See Also

Path Analysis in Personality Research
Size Effects in Personality Research
Theoretical and Methodological Issues in Personality Research, General Concerns and
  Considerations

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Path Analysis in Personality Research

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Sewell Wright developed the method of path analysis as a way to study causation in agriculture and genetics. He thought that simply computing correlations between variables did not represent their actual causal nature. Nonetheless, he did think it was possible to decompose the correlations among variables into their underlying causal relationships. This is the underlying principle of path analysis: "The correlation between two variables can be shown to equal the sum of the products of the chains of path coefficients along all of the paths by which they are connected" (Wright, 1920, p. 115).

Path analysis largely stayed in the fields of biology and genetics until it was brought into the fields of economics and sociology. From there, it was largely introduced to the field of psychology by Karl Jöreskog (1973) through his linear structural relations (LISREL) models.

Path Diagrams

To represent the ostensible underlying causal relationships among variables, Wright developed path diagrams. Path diagrams express the equations relating a system of variables using geometric shapes and arrows. These are shown in Figure 1. When the elements in Figure 1 are correctly combined in a path diagram, then the algebraic relationship between the variables is completely specified.

There are three steps involved in creating a path diagram. First, lay out all the variables (i.e. squares, circles, and triangles) in the model. Second, specify the relations (i.e. arrows) among the variables. Third, determine whether the parameters associated with a given path/arrow need to be fixed at specific values or estimated from the data.

Variables in a path model can be categorized into one of two types: those that are without a direct cause (*exogenous*) and those with a direct cause (*endogenous*). Endogenous variables always have an attached error term associated with them, which represents the discrepancy between the observed values and the values predicted by the model. Because the
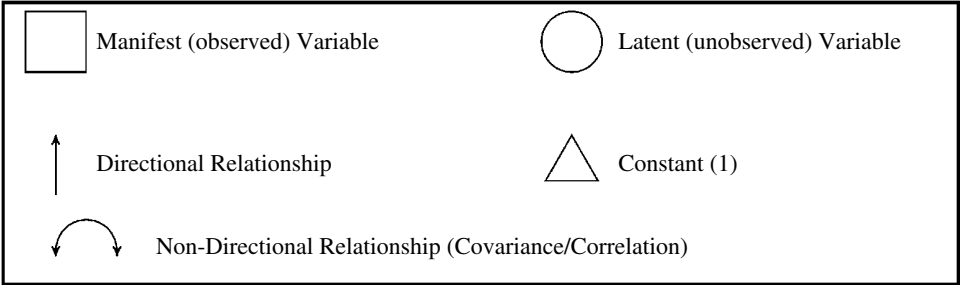
Figure 1 Path diagram elements.
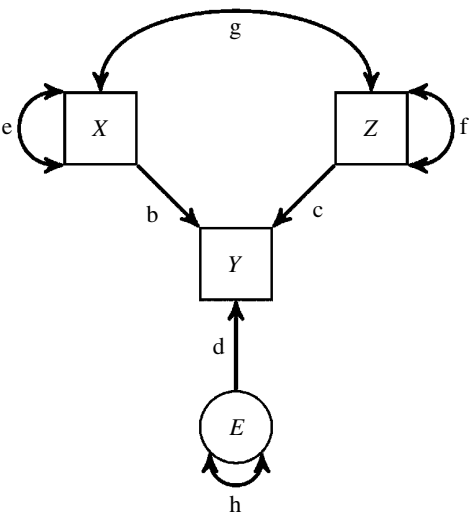
Figure 2 Path diagram for a multiple regression with two predictor variables from Equation 1.

error terms, by definition, represent something unexplained by the model, they have no direct cause within the model so are exogenous; moreover, these error terms are not directly measured, so they are latent. While endogenous variables are never connected to non-directional (i.e. double-headed) arrows, their error terms can covary with other variables.

As an example, say we have three standardized variables: two predictors (X and Z) and one outcome (Y). One might think, for example, of X and Z as representing professors' levels of Agreeableness and Charisma, and Y representing students' Ratings of Effectiveness. Equation 1 shows one possible structural equation of how the variables might be related.

$$Y = bX + cZ + dE, \qquad\qquad 1$$

where E is an error/residual term with a mean of zero. Equation 1 also happens to be a multiple regression. Thus, it hypothesizes that professorial personality traits are directly related to student perceptions of professorial effectiveness.

The analogous path diagram for Equation 1 is shown in Figure 2. It contains three squares and one circle. The squares represent the two predictor variables and one outcome

variable while the circle represents the error term associated with the outcome. The model contains three single-headed arrows (b, c, and d) that point to Y. These arrows represent the three terms that are added together on the right-hand side of Equation 1.

Figure 2 contains four double-headed arrows. All exogenous variables and all error terms need to have a double-headed arrow to represent their variance. In Figure 2, arrows e and f represent the variance for variable X and Z, respectively. The double-headed arrow for E (h) represents the error variance (i.e. the variance in Y that is unexplained by X and Z). The double-headed arrow between X and Z (g) specifies the potential covariance between these two predictor variables. If this arrow were excluded, then the model would specify that the predictor variables are independent of each other (e.g. professorial Agreeableness and Charisma are unrelated). Because all variables are standardized, there is neither an intercept term in Equation 1 nor a triangle (constant) in Figure 2. If the variables were not standardized, then the path model would include a triangle pointing to the Y variable to represent the intercept.

Estimating Values for the Paths

Wright developed a set of rules for how to estimate values for a path model's coefficients by tracing the paths within it. These *tracing rules* are simply a way to estimate the covariance between two variables by summing the appropriate connecting paths. A version of these rules is given in Figure 3.

- Trace all paths between two variables (or a variable back to itself), multiplying all the coefficients along a given path.

- You can start by going backwards along a single-headed arrow, but once you start going forward along these arrows you can no longer go backwards.

- No loops. You cannot go through the same variable more than once for a given path.

- At *maximum*, there can be one double-headed arrow included in a path.

- After tracing all the paths for a given relationship, sum all the paths.

- The mean of a variable is found by tracing all paths from it to the constant, and then adding all values. The paths:

    o can only go through directional arrows, and

    o can only go backwards along an arrow

Figure 3 Tracing rules for a path diagram.

Table 1 Correlation matrix to accompany Figure 1.

	X	Z	Y
X	1.00		
Z	.20	1.00	
Y	.70	.30	1.00

To estimate the relation between X and Y in Figure 2, find all the permissible pathways from X to Y. These paths are b and gc. Likewise, all the permissible pathways from Z to Y are c and gb. The covariance of Y with itself (i.e. the variance of Y) consists of the paths that both start and end at Y: $beb = b^2e$, c^2f, cgb, bgc, and dhd. For model identification, either d or h needs to be constrained. Setting d equal to one makes the path to and from Y: $1h1$ or just h. The sum of paths that go through X and Z represents the amount of Y's variance that X and Z explain (i.e. R^2): $b2e + c2f + cgb + bgc = R^2$. Because d was set to equal one, h represents all the error/residual variance (i.e. $1 - R^2$).

Estimating numerical values for the paths is a straightforward task after calculating all the variables' variances and correlations (and means, if applicable). It simply involves setting the appropriate path combinations equal to the correct value. Since the variables' variances and correlations are already known from the data, some of the path values are automatically known (e.g. e, f, g in Figure 2). The remaining path values can be calculated by setting up a system of equations. If the number of known values (i.e. variances, correlations) are equal to, or greater than, the number of unknown path values (which is the case for Equation 1/Figure 2), then solving these equations should produce unique estimates for the paths. If there are more unknown paths to estimate than there are known values, then the model is underidentified and there will not be unique values for the paths.

Some example correlations to accompany the path model in Figure 2 are given in Table 1. From this data, the following path values are automatically known: $r_{XZ} = g = .20$, $s_X^2 = e = 1.00$, and $s_Z^2 = f = 1.00$. As the correlation between X and Y is .70, the sum of all paths from X to Y has to equal this value, i.e. $r_{XY} = .70 = b + gfc$. The values for g and f are already known, so the equation simplifies to: $.70 = b + (.20)(1)(c) = b + .20c$. A similar equation can be set up for the correlation between Z and Y: $r_{ZY} = .30 = c + geb = c + .20b$. The correlations between Y and X and between Y and Z make up a set of two equations with two unknown values: $.30 = c + .20b$ and $.70 = b + .20c$. When solved, $b = .667$ and $c = .167$.

The last path value to estimate is h. This value can found just like b and c, although the equation is more complex: $s_Y^2 = 1 = b^2e + c^2f + bgc + cgb + h = .667^2 + .167^2 + (.667)(.20)(.167) + (.167)(.20)(.667) + h$. After completing the arithmetic, this simplifies to $h = 1 - [.667^2 + .167^2 + 2(.667)(.167)(.20)]$, which makes $h = .483$.

Extensions

Path models are not confined to only representing regression equations. They can also represent multivariate models, such as those required for mediation models, confirmatory

factor analysis, and canonical correlations. Moreover, path models can be used as the building blocks for general structural equation models. Some examples of more complex path models are shown in Figures 4, 5, and 6.
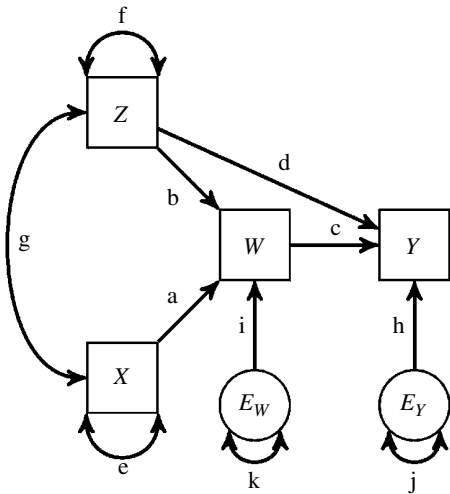
Figure 4 Path diagram of mediation, with W partially mediation the Z-Y relation and fully mediating the X-Y relation.
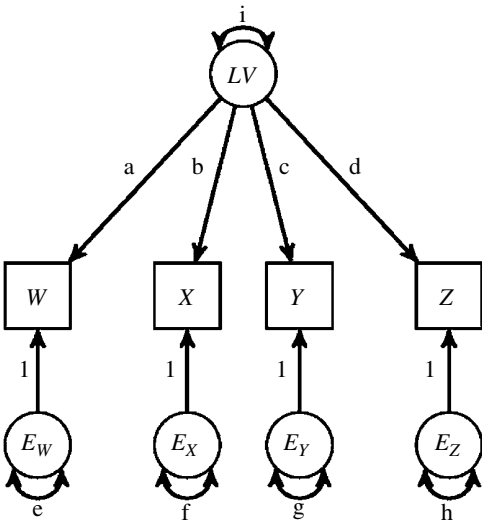
Figure 5 Path diagram for a confirmatory factor analysis, with one latent variable (LV).
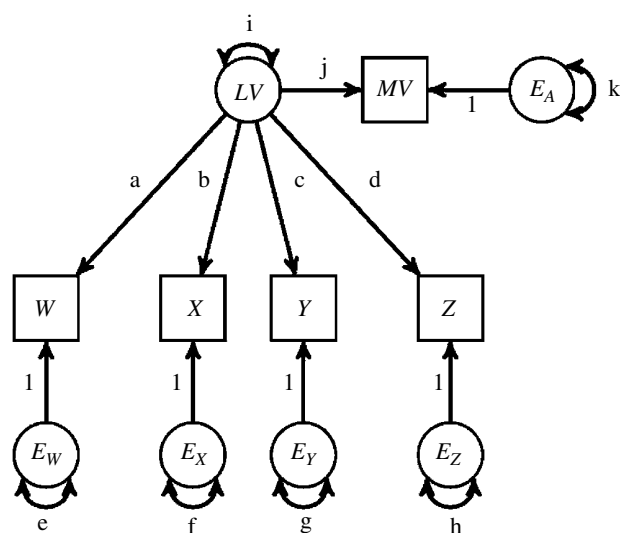
Figure 6 Path diagram of structural equation model with a latent variable (LV) predicting a manifest variable (MV).

See Also

Factor Analysis in Personality Research
Multiple Regression in Personality Research
Structural Equation Modeling in Personality Research

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Size Effects in Personality Research

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Recently, there have been efforts to move away from null hypothesis statistical testing (NHST) and move toward estimation in psychology research, including using effect sizes and confidence intervals to report results. One reason is that effect sizes provide more information about the data than *p* values do; whereas *p* values tell researchers that a result is statistically significant or not, effect sizes provide information about the magnitude and direction of the effect. The most up-to-date edition of the *Publication Manual* of the American Psychological Association (2010) calls for reporting effect sizes and confidence intervals alongside any results from NHST as a way of getting the most complete picture of the results. Effect sizes and their corresponding confidence intervals can be compared across similar studies to assess consistency in different samples, as well as precision.

What is an Effect Size?

The definition of effect size can be broad – researchers can think of an effect size as anything that quantifies what they are studying. The term effect size can encompass a wide variety of statistics, ranging from means to correlations to measures of goodness of fit. What an effect size is actually assessing depends on what type of research is being conducted. In experimental research, the effect size can indicate the amount of influence an independent variable has on a dependent variable. In non-experimental research, the effect size can indicate the size of the relationship between two variables.

A good effect size measure possesses four desirable qualities (Preacher & Kelley, 2011). First, the scale used for the effect size measures should be appropriate for the research question; sometimes the scale may be standardized, but other times the scale may be in the measure's original units. Second, the estimate should be reported with a confidence interval. Confidence intervals provide a way of assessing the level of uncertainty associated with a given effect size estimate and are indicative of how much sampling error is associated with the effect size value. Additionally, they provide information about the population

value being estimated with the effect size measure. Third, the effect size measure should be independent of sample size. For this reason, among others, *p* values are not a proper effect size measure. Fourth, the measure should have good statistical properties. It should be unbiased (the expected value of the effect size estimate should be the same as the parameter being estimated), consistent (as *n* increases, the effect size estimates should converge to the population parameter), and efficient (an efficient estimator is stable among the samples being tested).

What Effect Sizes are Used?

As previously mentioned, researchers have a wide range of effect size measures to use in assessing their results. Effect size measures have been categorized in a number of ways; here, they are divided into two categories, unstandardized (or raw) and standardized.

When researchers choose to use unstandardized, or raw, effect size measures, they are using measures such as the mean, median, or difference between two means. They appear in their original units and are interpretable, such as the number of cigarettes smoked each day. They may be used less frequently in psychological research compared to other fields such as medicine; many psychological constructs are more abstract in nature than, for instance, blood pressure. However, Wilkinson and the APA Task Force on Statistical Inference (1999) recommend using unstandardized measures where possible. Other unstandardized measures include the covariance, which may be appropriate when researchers are looking at the association between two variables, and the unstandardized regression coefficient, which estimates the amount of change in the *y* variable for each unit change in the *x* variable.

Researchers may also choose to use standardized effect size measures. These include measures traditionally thought of as effect size measures, such as Cohen's *d*, and are unit-free, which is helpful for comparing effect size values across studies where the variables are measured using different scales. There are two families: the *d* family and the *r* family.

The *d* family contains measures of standardized mean differences and includes measures such as Cohen's *d*, Hedges' *g*, and Glass's Δ. The generic formula for the *d* family measures is the difference between two group means divided by the population standard deviation ($(M_1 - M_2)/SD$). Where these three measures differ is in the standard deviation used. Cohen's *d* uses a pooled standard deviation estimate for the two groups. Hedges' *g* uses a pooled weighted standard deviation estimate, if the size of the two groups is different. Glass's Δ uses the standard deviation from the control group.

The *d* family also includes dichotomous measures that assess the likelihood of participants belonging to one of two categories. To assess this likelihood, researchers can use three measures, with *p* as the probability of an individual belonging to Group 1 and *q* as the probability of an individual belonging to Group 2. First, they can calculate the difference between two probabilities ($p - q$). Second, they can calculate the risk ratio (p/q). Third, they can calculate the odds ratio ($((p/(1 - p)/(q/(1 - q)))$).

The effect size measures in the *r* family provide information about the strength of the relationship between two variables and can be used with both dichotomous and continuous variables. They are also standardized measures, enabling comparison among related

studies. Correlation coefficients provide information about both the strength and the direction of the association. There are many different types of correlation coefficients, including the Pearson product moment correlation coefficient (r), Spearman's rank correlation (ρ or r_s), and the point-biserial correlation coefficient (r_{pb}). The values of these measures range from -1.0 to $+1.0$.

Also included in the r family are measures of the proportion of shared variance. One commonly used measure is r^2, called the coefficient of determination, which is simply r squared. It indicates how much variance is shared between the two variables as a percentage. A related measure is R^2, the coefficient of multiple determination, and is associated with multiple regression. The values of these measures range from 0.0 to 1.0.

Along with unstandardized and standardized measures, there is another type, termed criterion-referenced measures (Ozer, 2007), which are "tied to some meaningful standard outside the original units." An example of such a measure is based on "percentage of maximum possible," or POMP. POMP scores are calculated using the equation $100 \times$ (Observed score – Minimum score)/(Maximum score – Minimum score). This equation indicates where a given score on the associated scale, as a percent of the maximum possible score.

Interpreting Effect Sizes

Cohen (1992) proposed effect size values that correspond to small, medium, and large effects. When using d, small, medium, and large effects are equal to .20, .50, and .80, respectively; when using r, small, medium, and large effects are equal to .10, .30, and .50, respectively. However, others caution against using Cohen's values as a way of determining what a small, medium, or large effect truly is because this may lead to further rigidity, similar to that seen with p values.

However, interpreting an effect size estimate may take more work than simply comparing it to existing benchmarks. Whether an effect size estimate is small, medium, or large may depend on the area of study. The outcome of interest may direct researchers in the assessment, as well as the effect size values found in previous studies in the same area. When considering earlier studies, researchers can assess the quality of the methodology used in the studies presumably, a study done using high-quality methods will have a more accurate effect size estimate than its low-quality counterpart. Additionally, researchers can look at the significance of the finding – do the results have a theoretical or practical significance? A seemingly small effect size may have important implications for the direction the theory takes or for consequences in the world outside of the study. Small effects may also accumulate over time, resulting in a larger effect than initially expected.

As previously mentioned, the *Publication Manual* (APA, 2010) recommends reporting confidence intervals alongside effect size estimates. Confidence intervals provide information about the precision (or uncertainty) of the effect size estimates and aid in interpretation of these estimates. Confidence intervals are equal to $100(1 - \alpha)\%$, where α is the likelihood of the true value not being included in the confidence interval. Values for α commonly include .05 or .01, resulting in 95% or 99% confidence intervals. They provide a range of values for the population effect size and can be interpreted as the degree of confidence that the population effect size is included in the range; any value within the range is

a possible population value. Confidence intervals will vary in their length from study to study because of the variations in sample standard deviations among the studies.

Where Else are Effect Sizes Used?

Effect sizes are important components used in calculating statistical power and in conducting meta-analyses. Power is the probability of correctly rejecting the null hypothesis when the alternative hypothesis is true; it is equal to $1 - \beta$, where β is the likelihood of making a Type II error, or failing to reject the null hypothesis. Power is generally set to .80. There are three pieces of information that are used in calculating the level of power: (1) α, the significance criterion, which is usually set to .05; (2) N, the sample size; and (3) the population effect size. Power analyses are often used to calculate the necessary sample size. If any three of these pieces of information are available, researchers can calculate the fourth, depending on what variable is of interest.

In meta-analyses, researchers combine the results from studies that investigate the same phenomenon as a form of systematic review. They take the effect sizes found in each study and find the average to approximate the true effect size for the relationship between the variables of interest. Commonly used effect size measures in meta-analyses include correlations, standardized mean differences, and odds ratios.

See Also

Meta-analysis in Personality Research
Replication Research
Theoretical and Methodological Issues in Personality Research, General Concerns and
    Considerations

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Structural Equation Modeling in Personality Research

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Conceptualization

Structural equation modeling (SEM) is a term referring to a collection of statistical techniques allowing researchers to test theoretical models specifying presumed causal relationships among a number of variables. Its primary purpose is to determine whether a theoretical model successfully explains relationships observed in sample data. Unlike traditional statistical methods such as ANOVA and multiple regression, which estimate parameters from individual cases, SEM estimates parameters from covariances among variables in a data set. Additionally, SEM can model theoretical relations among latent (unobserved) variables, although SEM models need not consist of hypothesized latent variables (Hoyle, 2011; Kline, 2005). In their purest form, SEM techniques enable researchers to test how well sets of observed variables define constructs and how these constructs are related to each other (Schumacker & Lomax, 2016). SEM is sometimes referred to as "causal modeling," "analysis of covariance structures," and "covariance structure modeling"; it is also sometimes referred to as "path analysis" and "confirmatory factor analysis," although both are, in fact, special cases of SEM. Many software programs are available to conduct SEM analyses.

SEM Procedures

A crucial first step in SEM is "model specification," whereby the researcher makes specific predictions regarding how certain variables are causally related (Schumacker & Lomax, 2016). These predictions may be specified in the form of linear equations that specify the theorized causal structure among variables (hence the term "structural equation modeling") or in the form of a pictorial diagram that includes all relevant variables and the directionalities of the theorized causal effects among them. Given the non-experimental nature of SEM, it is crucial that model specification be guided by theory and research, rather than the investigator's own

hunches or experiences. Once a theoretical model is specified, SEM mathematically tests whether the sample data covariance matrix is similar to the covariance matrix implied by the specified model. If the two matrices closely resemble one another, then the theoretical model is supported (i.e. the model "fits" the data); if not, the model may be modified.

Model fit is assessed through various indices indicating whether the theoretical model, as a whole, fits the sample data. If the researcher develops and tests different theoretical models, he or she can determine which of these models best fits the data. SEM models also yield parameter estimates for each hypothesized causal path, as well as significance tests for these estimates.

Key Terms in SEM

A *path diagram* is a pictorial representation outlining the theoretical model, that is, the hypothesized relationships among the variables in the model. Any variable predicted to pre-cede and have a causal influence on some other variable is a *predictor variable*, or *antecedent variable*; any variable hypothesized to be affected by a predictor variable is an *outcome variable*, or *consequent variable*. A *manifest variable* is one that is measured or observed directly, whereas a *latent variable* is neither directly observed nor measured; latent variables are often referred to as *constructs* or *factors*. For example, a respondent's score on the Narcissistic Personality Inventory (NPI; Raskin & Terry, 1988) represents a manifest variable, in that it is a direct measure of the respondent's level of narcissism (see Narcissism, Assessment of).

Alternatively, narcissism can be regarded as a latent variable; it is a construct that is pre-sumed to exist, although it cannot be observed directly. A researcher may record partici-pants' scores on a measure of narcissism, but it is understood that the resulting scores are only approximations of where they stand on this construct. An *endogenous variable* is one whose variability is predicted to be causally affected by other variables in the model, whereas an *exogenous variable* is one that is predicted to causally influence variability in one or more endogenous variables.

Exogenous variables are presumed to be influenced by other variables not included within a theoretical model. A *path coefficient* is a number that represents the magnitude of the effect of one independent variable on a dependent variable. In SEM models, path coefficients are in the form of standardized regression coefficients (β), meaning that they represent the amount of change in an outcome variable (in standard deviation units) associated with a one standard deviation change in a predictor variable, while controlling for other predictor variables (see Multiple Regression in Personality Research). A *mediator variable* is an intervening variable that conveys the effect of a predictor variable onto an outcome variable. In simple terms, a mediator variable is a conduit through which one variable indirectly influences another variable.

Assessing Model Fit in SEM

The most basic way to evaluate how well a theoretical model fits the sample data is the chi-square (χ^2) test. In SEM, the χ^2 statistic provides a test of the null hypothesis that the theoretical model fits the sample data. If $\chi^2 = 0$, the theoretical model perfectly fits the data

(i.e. the implied variance-covariance matrix is equal to that of the sample data). Hence, small χ^2 values and concomitant large, non-significant p values suggest the theoretical model adequately represents the hypothesized relationships among the variables in the sample data.

Although the χ^2 test can be a useful index, it has fallen into disfavor because it can be influenced by such things as departures from multivariate normality and sample size (Hoyle, 2011; Schumacker & Lomax, 2016). As such, other fit indices should be considered in evaluating model fit. Some of these include the normed fit index (NFI), goodness-of-fit index (GFI), adjusted GFI (AGFI), and Tucker-Lewis Index (TLI). Values on these indices may range from 0 (no model fit) to 1 (perfect model fit), with values over .90 reflecting good model fit. In addition, it is advisable to review R^2 values for all endogenous variables in the model. R^2 values indicate the percent of the variance explained in endogenous variables independently by the predictor variables. In SEM, R^2 values are interpreted as they are in multiple regression, in that they may range from 0 to 1, with higher values indicating greater variance explained. Large R^2 values for each endogenous variable suggest that the theoretical model demonstrates acceptable fit to the sample data. Finally, it is also necessary to examine the individual path coefficients and if they are significant.

SEM: Three Cases

Three cases below are intended to illustrate the basics of SEM. In the figures that follow, rectangles represent manifest (i.e. measured) variables, and ovals represent latent variables (i.e. constructs); single-headed arrows represent direct unidirectional causal effects as hypothesized by the researcher, and double-headed arrows connecting two variables represent correlations between variables.

Case 1: SEM with Manifest Variables

The theoretical model shown in Figure 1, technically considered a *path analysis with manifest variables*, suggests that three measured variables (v2, v4, and v5) have a direct causal effect on the variability of v1, which is the measured outcome variable of interest. The outcome variable v1 may be, for example, job performance, relationship satisfaction, or amount of credit card debt; the other variables may be trait and individual difference variables, such as conscientiousness (see Conscientiousness) and self-efficacy (see Self-efficacy), thought to have a bearing on the outcome variable. As indicated in the model, the three exogenous variables (v3, v4, and v5) are expected to correlate with one another. However, the model suggests that v3 is not hypothesized to have a direct influence on v1, as there is no path directly from the former to the latter. Rather, the model suggests that v3 has an *indirect* effect on v1; specifically, v3 influences v1 by first influencing v2. In other words, v2 mediates the effect of v3 on v1. The model further suggests that v4 has both a direct and indirect effect on v1. A path goes directly from v4 to v1, indicating a hypothesized direct effect.
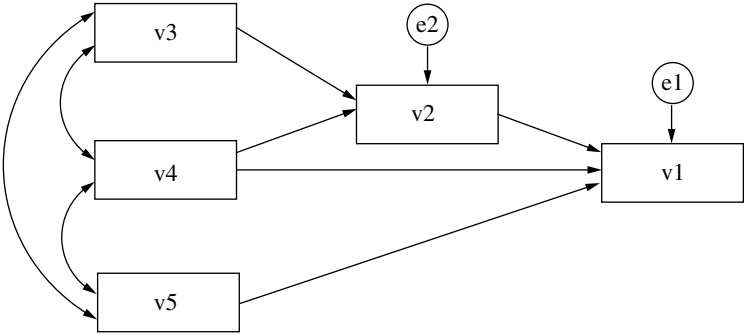
Figure 1   Theoretical model with manifest.
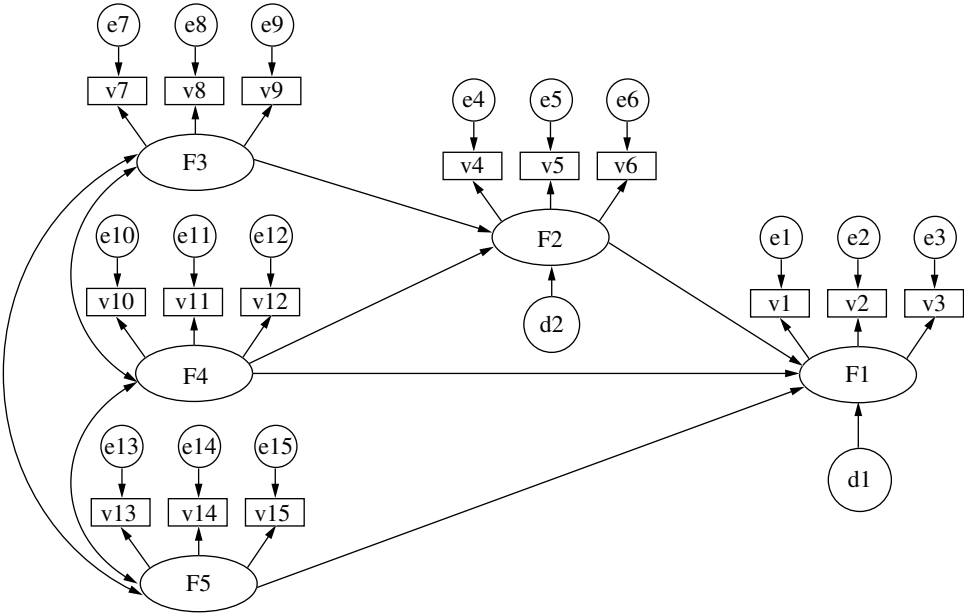
Figure 2   Theoretical models with latent variables.

However, a path also goes from v4 to v2, and a second path goes from v2 to v1, thereby indicating that v4 also indirectly influences v1. The final components in this model, represented by e1 and e2, are error terms, which represent the effects of other sources of variability in endogenous variables, as well as measurement error in both variables.

Case 2: SEM with Latent Variables

The theoretical model displayed in Figure 2 is a path diagram illustrating a theoretical model in which the main variables of interest are latent variables, or factors, identified as F1, F2, F3, F4, and F5. As before, F1 is hypothesized to be directly predicted by F2, F4, and

F5, and indirectly by F3 and F4. Also, F1 and F2 are thought to influenced by "disturbance terms" (i.e. d1 and d2), which, in the case of path analysis with latent variables, have the same interpretation as error terms for manifest variables.

Because each of the five main variables is latent, they must be measured by multiple observed "indicator" variables. For example, if F3 represents self-efficacy, the arrows in the diagram indicate that this latent factor is expected to influence three manifest variables tapping into this construct, labeled here as v7, v8, and v9 (which might be, for example, three independent measures assessing self-efficacy). In SEM models with latent variables, the degree to which indicator variables measure a latent construct is assessed through *confirmatory factor analysis* (CFA). Unlike exploratory factor analysis (see Factor Analysis in Personality Research), CFA is hypothesis-driven in that the researcher must have a strong a priori sense of which indicators reflect a specific factor (Brown, 2006). The portion of SEM models that describe these relationships is called the *measurement model.* In CFA, the path coefficients extending from a latent factor to its respective indicators are factor loadings; if these loadings are large, it is reasonable to conclude that the manifest indicators are adequately measuring the latent construct. The portion of the model that assesses the hypothesized causal relationships between the latent constructs is called the *structural model.* In the figure, the structural model consists of the paths connecting F1, F2, F3, F4, and F5.

Case 3: SEM with Both Effect and Cause Indicators

The model displayed in Figure 3 is a particular kind of SEM model known as a multiple-indicator multiple-cause (MIMIC) model. A MIMIC model is a measurement model specifying one or more latent variables with one or more manifest exogenous causal predictors (Schumacker & Lomax, 2016). The model in the figure specifies that a latent variable (F) measured by three observed effect indicator variables (y1, y2, and y3), each having separate error terms, can be predicted by three observed exogenous variables (x1, x2, and x3), known in this context as "cause indicators" (Kline, 2005). Such a model may be useful, for example, if a researcher hypothesizes that emotional well-being (a latent individual difference variable having multiple hypothesized effect indicators) is influenced by several cause indicators, such as income, education, and marital status.
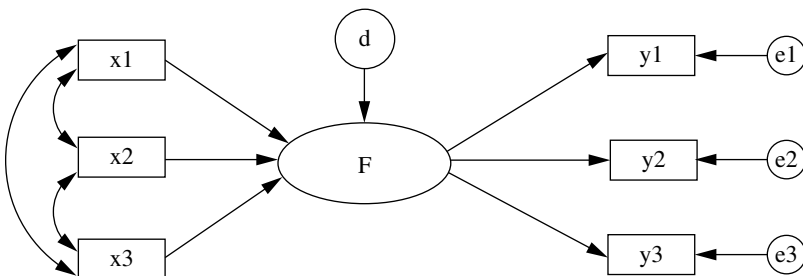
Figure 3   A multiple-indicator multiple-cause (MIMIC) model.

See Also

Conscientiousness
Carl Jung
Lewis Goldberg
Narcissism, Assessment of
Self-efficacy

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Acculturation Considerations in Personality Assessment

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Acculturation refers to the process of acquiring a new culture. Often discussed in terms of the experiences of immigrants (including sojourners and refugees) and Native Americans, acculturation encompasses various ways in which individuals may assume aspects of a host or dominant culture, including language, behaviors, values, and attitudes. Traditionally, acculturation has been assessed unidimensionally, with one end representing complete assimilation into the new culture and the other indicating full adherence to the home culture. Current research splits this continuum into two constructs: acculturation and enculturation. According to the current understanding, acculturation measures the level of adherence to aspects of the host or dominant culture, and enculturation assesses retention of aspects of the home culture. Individuals may be at any level on either of the two continua, including high in both acculturation and enculturation, low in both, or high in one and low in the other (see Berry, 1997). For the purposes of this discussion, the construct of acculturation (rather than both acculturation and enculturation) will be emphasized.

Many of the personality assessments currently in use have an inherent bias that assumes test-takers ascribe to White North American or Western European cultural backgrounds. However, many test-takers do not come from such backgrounds or adhere to these worldviews. Level of acculturation has been shown to affect test scores on popular personality assessments, such as the MMPI, the Rorschach Inkblot Test, and measures of the Five Factor Model of personality (see Dana, 1996; Okazaki, Okazaki, & Sue, 2009). Consequently, several considerations must be taken into account in test development, administration, and interpretation to increase the validity of responses for test-takers with varied levels of acculturation.

Test Construction

The acculturation of test-takers relates to the test construction process in different ways. One of the most prominent is language proficiency. Use of the dominant language of a host country is both considered an aspect of acculturation (see Berry, 1997) and has occasionally

served as a stand-in for acculturation in research. At the most basic level, test-takers should be comfortable reading written assessments and understanding verbal instructions in the language in which the assessment is administered. Beyond this, it is necessary for test items to show cultural equivalence. Even if a word or phrase can be read by a test-taker, he or she may not necessarily interpret it in the way it was originally intended due to the word or phrase having different meanings in the languages of the host and home countries. Consequently, it is essential that test construction includes careful consideration of the language proficiency of the intended test-takers, including appropriate translation and adaptation of measures as necessary, to increase equivalence and reduce potential construct, method, and item biases (van de Vijver & Tanzer, 2004).

Another consideration of test construction is the effect of acculturation level on response choice. Different methods of responding to items have been shown to be affected by acculturation. For example, free-response options may lead to answers that are misinterpreted by the test administrator due to subtle differences in language (see van de Vijver & Tanzer, 2004). Alternatively, Likert scales and dichotomous choices, which are two of the most common item response formats, have been shown to be influenced by acculturation levels. For example, aspects of acculturation, including language proficiency, individual collectivism, and cultural values, have been shown to influence the tendency of Hispanic test-takers to respond with extreme or acquiescent scores and Asian test-takers to select midpoint options such that less acculturated test-takers within the United States had these types of patterns, whereas those that were more highly acculturated showed them to a lesser extent (Marín, Gambia, & Marín, 1992; see Wang, Hempton, Dugan, & Komives, 2008). Overall, research has shown that response tendencies fluctuate across countries and regions (Harzing, 2006). Therefore, it is important for test developers to consider response options when designing tests for use with test-takers who have varied levels of acculturation.

A final consideration is the standardization of measures and their normative groups. Although many modern personality assessments provide normative data that consist of diverse groups, few include analyses related to specific cross-cultural groups or account for potential within-group differences (Okazaki et al., 2009). Without such analyses, it is difficult to determine the potential impact that changes in language proficiency or the adaptation of different cultural values may have for specific groups. These may be especially important for instruments with set cut-off scores, such as the MMPI-2, as clinical decisions are often made based on their outcomes.

Test Administration

Level of acculturation has been shown to affect how test-takers respond to different aspects of personality test administration. The traditional North American model of test administration is typically impersonal and task-oriented, with an expectation that the assessment will be completed in a timely manner. Often, those administering the test only meet with the test-takers for the purpose of the assessment. However, many individuals do not prefer this style of interaction and might expect it to be different. When this occurs, test-takers can become uncomfortable with the testing process, which may affect their self-disclosure and responses to test materials. It is important for test administrators to be culturally competent and

understand the potential differences in personal style that may be necessary to elicit accurate responses, even with the use of cross-culturally validated instruments (Dana, 1996).

Other aspects of test administration affected by acculturation include the physical environment and the actual method by which the test-taker completes the assessment (van de Vijver & Tanzer, 2004). For example, the presence of other test-takers and their distance from each other may influence a person's comfort due to cultural differences in personal space preference. Additionally, modern methods of data collection, such as computers and the Internet, are not familiar to some test-takers, which may affect their responses. Therefore, it is essential for test administrators to be familiar with the potentially subtle effects of the environment on participants with various levels of acculturation.

Finally, language proficiency can impact a test-taker's understanding of the instructions for the assessment (van de Vijver & Tanzer, 2004). It is important for the test administrator to be familiar with the assessment, able to answer questions (and predict when it is likely that test-takers will not ask their questions), and provide clear and direct instructions. Failure to do so may hinder the ability of test-takers to correctly complete the test.

Test Interpretation

In addition to test development and administration, the accurate interpretation of test responses can be affected by the acculturation of the test-taker (van de Vijver & Phalet, 2004). The aforementioned acculturation considerations can impact a test-taker's responses, thus rendering his or her results invalid. If the test interpreter is not aware of these potential issues, the results can be inaccurately interpreted. Relatedly, the test interpreter may determine the results based on the dominant culture, without taking into consideration potential acculturation issues. This can lead to the overpathologizing of test-takers with lower levels of acculturation. For example, research has found that Asians who are less acculturated in the United States have higher scores on several of the MMPI-2 scales than both Asians who are more highly acculturated and non-Hispanic Whites (see Okazaki et al., 2008). Without an understanding of level of acculturation, erroneous clinical recommendations may be made.

Feedback to test-takers can also be influenced by aspects of acculturation (Dana, 1996). Similar to the test administration considerations, it is necessary for those providing feedback to do so with respect to cultural considerations, such as beliefs about mental health and the role of family members or others in the decision-making process. For instance, some test-takers will expect family members to make the ultimate decisions regarding any recommendations.

Recommendations for the Consideration of Acculturation

Researchers have posited several recommendations for considering acculturation in personality assessment. The first is to use tests that have cross-cultural validity and, ideally, have been examined for within-group differences of a specific population (Dana, 1996). A number of personality assessments have demonstrated at least some aspects of

cross-cultural validity, such as the Holtzman Inkblot Test and the Tell-Me-A-Story. This might include giving assessments in the first language of the test-taker, even when he or she is fluent in the dominant language. For instance, research has found that Hispanics in the United States may be more likely to respond with lower levels of culturally stereotypical responses when assessments are given in their first language.

A second recommendation is to assess for the acculturation of the test-taker (van de Vijver & Phalet, 2004). This can be done using validated acculturation measures and/or detailed information about the background of the test-taker, such as length of time in the United States. Based on the results, appropriate tests can be selected and their results interpreted in relation to the acculturation of the test-taker. Additionally, when assessments are given at multiple time intervals or are compared to previously administered tests, the results of acculturation measures may alert the test administrator that assessment responses may be due to changes in response tendencies or cultural understanding.

A final recommendation is that those developing, administrating, and interpreting tests are culturally competent (Dana, 1996). This is an important component in recognizing when personality assessments, which are often considered to be culture-free, actually contain bias or take an emic approach to culture. It also allows for the administration and interpretation of assessments in ways that take into account a test-taker's preferred culture.

See Also

Cross-Cultural Research, Methodological Issues of
Cultural Free/Fair Intelligence Test

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Computer Adaptive Testing (CAT)

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Computer adaptive testing is a form of electronic testing that adjusts to the skill and knowledge level of the test-taker. These tests can be programmed to detect and grade the participant on their level of knowledge, preparedness, or mental status, depending on the purpose of the test. It can do this without spending extra time on unnecessary questions or on questions that are too difficult or too easy for the participant.

History

Alfred Binet, a French psychologist, was the first to utilize adaptive testing. In 1905, he tailored intelligence tests to focus on the individual person and their unique abilities rather than meeting the needs of a bigger group. He used a basic method of either increasing or decreasing question difficulty based on the way in which participants performed on the previous question. He was not concerned with making the test uniform, but rather tailoring the test to measure unique skills of the person he was testing. His method was efficient for individual use but not feasible for testing large groups. In the 1950s, Frederic Lord, a psychometrician for the Educational Testing Service, developed a modified, adaptive testing method called Flexilevel that could be used on large groups at a time (Linacre, 2000). This method employed an algorithm that allowed a test to rearrange the order in which the items were presented based on a fit between how difficult the item was and how the test-taker was performing. While test-taker may answer different items from each other on any given test based on how they are performing, the way in which the test is scored allows for the scores of all test-takers to be on the same scale and thus, comparable to each other. Additionally, the simple algorithm created by Lord also allowed for the tests to be self-scored.

Procedure and Methodology

The first step to any kind of adaptive testing is to formulate an item bank. This is a collection of questions, typically multiple choice, that are categorized by a ranking method called item response theory that distinguishes items by subject and level of difficulty. The ranking process is completed prior to the administration of the test. The test taking process is based on an algorithm that begins with a medium-level question based on the projected ability of the test-taker. If the participant answers correctly, they will then be given a more difficult question, but if they answer incorrectly, they are given an easier question. This process continues until the appropriate level of question difficulty is found, which is when there is a 50% chance that the test-taker could answer the question either incorrectly or correctly. If a question is too easy then there is a higher chance that it will be answered correctly, if the question is too difficult, there is a higher chance it will be answered incorrectly (Linacre, 2000). The test will continue to administer items until they are neither too easy nor too difficult. The test will continue until the programmed "stopping rules" are achieved. Test programmers will dictate these criteria depending on the purpose of the test. However, some general stopping points are when the item bank has been used to its capacity, the maximum test length has been reached, the person's level can be measured with precision, or when testing behaviors such as guessing or cheating are detected. While calculating answers, the computer is able to consider the possibilities of unlucky answers, mistakes, carelessness, and guessing by measuring the time it takes a person to answer the question or the pattern of what kinds of questions were missed. There are also certain criteria that must be met before the test can end. For instance, the minimum number of questions must be given, all topics or sections of the test must be covered, and sufficient answers in order to maintain validity of the final score must be administered (Linacre, 2000).

Advantages and Disadvantages

Computer adaptive testing's main advantages include efficiency, the ability to avoid asking questions that are irrelevant, and allowing the test to be more accurate. Owing to this, tests can be shorter and take less time. The computer is able to give immediate feedback once the last question has been administered and the scores are calculated. The ability of these tests to detect mistakes and irrelevant answers decreases the negative impact an item's mislabeled difficulty level can have on a student's score. These tests also increase security because they are administered electronically, as well as causing less fatigue for the participant being tested and the grader because it is all scored by the computer. Scores are based on the specific participant but can cover a wide range of abilities and skill sets. Overall, these give a better testing experience for both participants and administrators.

A major disadvantage with computer adaptive testing is that students cannot review past items on these types of tests because once the question is answered it is not shown again. This can cause problems if the test is being used for learning purposes. Additionally, it can also lead to misuse by the test-taker because a well-trained participant may try to answer the first set of questions incorrectly in order to receive easier questions on the remaining portions. In doing this, they are attempting to outsmart the test and receive a better score.

Another disadvantage is that people of the same skill level often have the same questions and could potentially share them with others. A way to avoid this would be to have completely randomized tests, but then the test becomes less efficient. Items on the test cannot be edited with ease because they must be tested ahead of time in order to categorize their difficulty correctly. Lastly, a major downfall to these tests is the funds that are required because administrators must purchase the programs to run the test, as well as the computers to administer them. This limits the places that are able to facilitate these tests.

Today's Applications

Today, computer adaptive testing is used in various ways by organizations, schools, research labs, and military branches. Many companies use computer adaptive testing for employee applications. These tests can help them determine if prospective employees have the qualities or skills required to excel at the position. Schools and educational programs use computer adaptive testing for entrance exams, such as the Graduate Management Admission Test (GMAT), the Graduate Record Examination (GRE), Test of English as a Foreign Language (TOEFL), as well as for cognitive assessments, such as the Woodcock Johnson intelligence assessments. Psychology research uses these tests to assess issues such as suicidal behavior and tendencies. For example, research performed by De Beurs, De Vries, De Groot, De Keijser, and Kerkhof (2014) applied computer adaptive testing to the Dutch version of the Beck Scale for Suicide Ideation (BSS) and showed that adaptive testing can reduce the length of this scale while more efficiently predicting suicidal behavior online. Military branches also use computer adaptive testing for the Armed Services Vocational Aptitude Battery (ASVAB), which allows them to estimate the success of incoming military applicants. Computer adaptive testing has also been used to evaluate the readiness of postwar soldiers and those dealing with post-traumatic stress disorder to be reintegrated into society. Computer adaptive testing is being used more frequently as researchers find new ways to utilize it. It is progressively becoming more common for measuring psychological phenomena, such as level and tendency toward depression as well as level of quality of life, especially in chronically ill patients.

See Also

Career and Vocational Interests Abilities, Assessment of
Educational Ability Testing (Educational Ability Testing (GRE/MAT/MCAT/LSAT))
Item Analysis
Self-regulation, Assessment of

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Culture-Free/Fair Intelligence Testing

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Defined

Creating a construct that summarizes an organism's (and recently machines) ability to think, communicate, learn, plan, and solve problems has been an important goal of science for many years. By continuation, so has the measurement of this construct. One of the first attempts at measuring and operationalizing the concept of intelligence was made by Sir Francis Galton using comparatively primitive instruments to measure an individual's reaction time as an indicator of cognitive ability. Since this humble beginning, the theories of intelligence have expanded to include, among other things, verbal and non-verbal reasoning, memory, and processing speed. As the understanding of intelligence expands, so too must our measurement strategies.

Recently, intelligence researchers have extended their gaze to study intelligence conceptualizations from other countries and cultures to see how they differed and/or agreed with the Western ideas of intelligence. Not surprisingly, there were some fundamental differences. For instance, E. A. Cocodia (2014) in his work *Cultural Perceptions of Human Intelligence* reported that while there were many similarities between Asian, Western, and African notions about intelligence, they also differed in many ways. While Asian and Western cultures emphasize formal, academic learning, African cultures tended to emphasize social savvy and practical skills. Additionally, Western cultures appear to be unique in the desire to conduct a task quickly. Asian cultures uniquely incorporate religious values into their views of intelligence and place more emphasis on self-improvement.

Since almost all intelligence assessments are based on Western constructs of intelligence, it is important to consider how researchers can measure intelligence across cultures. One of the answers to this question is to use intelligence assessments that attempt to control for cultural factors called culture-free or fair intelligence assessments.

Culture-Free Intelligence Tests

Richard Arvey in his comments on culture-free tests reports that culturally fair tests were first developed out of the desire to assess the abilities of non-English speaking immigrants just preceding World War I. Knowing that using verbal reasoning tasks would be unreasonably challenging, the United States emphasized non-verbal tasks to assess aptitude. Subsequent to this, culturally fair tests were frequently used in the U.S. Army to assess aptitude in new recruits. Arvey also notes that it was not until 1951 when the book *Intelligence and Cultural Differences* was published that society started to realize that individuals within a culture could be tested unfairly based on variables such as socio-economic status. From this point, culturally fair tests became more widely used and studied.

Culturally fair IQ testing is controversial with Anne Anastasi stating that by definition such tests control factors that are relevant in predicting outcomes such as success in work, not just test scores. Anastasi (1997) indicates that using non-verbal content instead of verbal might influence the score, but might influence its predictive validity in a context that requires verbal ability. Arvey suggests dimensions that may negatively affect overall test performances as the written format, heavy on verbal tasks, focus on speed, instructions that need to be read by the test-taker, and using items that may be unfamiliar to certain groups. Tests that focus on performance tasks, non-verbal reasoning, instructions that are read to the person, and content items that are more universally familiar to individuals are more likely to yield more consistent results across cultural and subcultural groups.

However, this theory is not perfect and has been shown to vary with many variables. A meta-analysis conducted by De Vijver (1997) found key areas that affected performance on cognitive tests. First, scores become more separated as affluence, and chronological age increase, meaning that culturally fair assessments have limits to the number of cultural variables they can account for. This analysis supports conclusions made by Arvey (1972). However, De Vijver's meta-analysis suggests that ethnic differences in cognitive task do exist, but suggests this may be influenced by of a variety of factors such as familiarity with the subject matter. So while there is some evidence that culturally fair IQ assessments have limitations, most evidence supports the choice to use such assessments.

When dealing with cultures that have different languages, values, and beliefs, it is easy to see how assessments that emphasize pictographic and other nonverbal reasoning tasks have more concurrent results than an IQ test that has been standardized on a Western population and includes verbal reasoning skills as a requirement. If items on an IQ assessment are too unfamiliar, then it becomes difficult for individuals to demonstrate their reasoning ability (Kline, 1991) and comparing those groups based on those scores would tell us little. However, even the non-verbal items are not completely unbiased. For example, Benson (2003) shares statements from Dr. Patricia Greenfield who states that most of the culturally fair tests utilize matrix reasoning tasks that strongly favor individuals with formal education since formal education often teaches pupils to work in lines and columns.

Further, according to Dr. Greenfield, as indicated by Benton (2003), individuals who come from cultures that consume written media may have the advantage in verbal reasoning. While on the topic, many authors and researchers contributing to this realm of work acknowledge the need to make some comparisons across cultures but warn against mindlessly comparing groups with the same test as this can begin to establish an unnecessary hierarchy.

Future of Culturally Fair Assessment

According to Serpell (2000) using more performance-based measures can help a test to be more culturally fair; there are other variables that need to be accounted for that exist outside of the actual test. Many researchers feel the future of culturally fair testing lies in two primary areas.

Benson's (2003) article suggests an important step in developing culturally fair testing is to continue to refine the tests and shift from the idea that we need one test to assess everyone and start to move toward tests created for singular groups or cultures that focus on their values and needs. In other words, researchers need to cease trying to identify individuals who are the most intelligent by Western standards and focus on identifying who is most intelligent by their culture's standards. In the past, many researchers felt that translating tests used in Western intellectual assessments would be adequate to assess accurately everyone's IQ. Now, researchers say otherwise citing that culture goes well beyond language and needs to consider traditions, attitudes, and societal norms (see Benson, 2003). However, it may not be entirely necessary to build a new test from scratch. Researchers Ashley Maynard and Patricia Greenfield and Carla Childs (2015) were able to measure successfully cognitive development in a Zinacantec Mayan village in Mexico by using objects and situations familiar to the Zinacantec. Additionally, research conducted by Shaunessy, Karnes, and Cobb (2004) found that standardized culturally fair tests become more effective if combined with multiple culturally fair tests since different tests focus on different cognitive abilities.

The second area of improvement does not deal with the form of the test but rather the administration. Many of the negative issues surrounding culturally fair testing occur during the administration and can address if the examiner is aware of them beforehand. Fletcher-Janzen and Ortiz (2006) suggest ways to reduce the effect cultural differences can have on an individual's performance. Fletcher-Janzen and Ortiz (2006) state that the first is to develop a sense of self-awareness. Acknowledge that often the most biased part of the assessment is the evaluator (Fletcher-Janzen & Ortiz, 2006). Recognize that the examinee may have different values and beliefs from your own (Fletcher-Janzen & Ortiz, 2006). According to Vernon (1979), much of the time individuals come from a background that places little emphasis on formal education. Fletcher-Janzen and Ortiz (2006) state that accessors need to remember, what intelligence looks like to them is not necessarily what it looks like to the subject. Second, establish rapport with your client. Many clients who are from a minority culture will be anxious about the testing and maybe even distrustful of the examiner (Fletcher-Janzen & Ortiz, 2006).

Fletcher-Janzen and Ortiz (2006) recommend ways that researchers and administrators can improve cross-cultural testing when applying intelligence assessments for practical purposes such as the identification of special needs or gifted populations. First, assessors need to take part in establishing criteria for identifying children who are worthy of being tested for access to special services. Since many children from diverse cultures do not fit into the classic mold of Western intelligence, it is important to educate schools and administration on the many forms intelligence can take. Next, administrators of tests should choose how they evaluate the culturally diverse carefully. In addition to using appropriate standardized measures, examiners should consider using alternative forms of assignments

such as videos or more visual presentations instead of written assignments to try to identify talents that may have otherwise gone undiscovered. Lastly, all the previously mentioned information should be considered while interpreting the assessment results and the child's culture and environment should be considered.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Cultural Specific Therapies
Individual Differences in Acculturation
Monolingualism, Bilingualism, Multilingualism

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Item Analysis

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Conceptualizations

Item analysis is one of the essential steps in scale construction of personality assessment. It broadly refers to the procedures of evaluating the characteristics of items and their psychometric properties in measuring a personality construct. The purpose of item analysis is to identify items to be retained, revised, or removed from the item pool, so as to improve the overall psychometric quality of the instrument. In personality assessment, item analysis is most used in development of self-report personality inventories, or objective personality tests, rather than projective techniques.

The purpose of assessment is to make inferences about the level of the trait it intends to measure based on examinees' responses, often summarized as scores on the assessment. An assessment consists of items and the item quality depends on the extent to which the items can provide information to make such inferences. A good assessment should only contain items that provide high levels of information concerning the trait, which is determined by two important indexes: item discrimination and item difficulty.

Item Discrimination

Item discrimination regards how well an item can distinguish between individuals having different levels of the trait the assessment intends to measure. An item is discriminative if individuals with different levels of the trait endorse different response categories on the item. Two formats of response categories most often used in personality assessment are the dichotomous format and the polytomous format. For dichotomous items, there are only two response categories, such as "*Yes*" or "*No,*" "*Like*" or "*Dislike,*" "*True*" or "*False.*" Polytomous items have more than two response categories and are often in the form of Likert-type rating scales. An item would provide little information in differentiating the individuals with different levels of the traits if all of them endorse the same or similar categories.

Item Difficulty

Item difficulty may be easier understood in tests of abilities, skills, and knowledge where evaluation of such traits depends on an examinee's *correct* responses to items. In this situation, the term *difficulty* makes more sense as it can be defined as the percentage of examinees who answer the item correctly. The item is difficult when fewer people answer it correctly and is easy when more people answer it correctly.

In personality assessment, personality traits are evaluated without correct answers. Indeed, many personality instruments often remind participants that there are *no* right or wrong answers while providing instruction during administration of the assessment. However, item difficulty is still an important index of item quality in personality assessment and can be understood as the portion of the trait continuum for which the item provides information. Psychological traits operate on a continuum with a range varying from low, moderate, to high. An item can differentiate individuals with relatively high levels of trait but not those with relatively low levels of the trait. In this situation, respondents with high levels of traits will choose different response categories while those with low levels of traits will endorse the same category.

Approaches to Item Analysis

Item analysis often involves two general approaches: qualitative and quantitative. The qualitative approach relies on the reviewer's judgment concerning the general qualities of the item: appropriateness of item content and format in accordance with the purpose of the assessment and intended population, clarity of grammar and expression, and item reading level. The reviewers are often experts in the subject matter related to the trait the assessment intends to measure. Possible sources of bias or languages offensive to a specific subgroup of the population can be identified, modified, or eliminated.

In most self-report personality assessments, item analysis is quantitative in nature and involves use of various statistical procedures to assess item discrimination and difficulty. The quantitative methods can be further classified based on two theoretical foundations: classical test theory (CTT) and item response theory (IRT).

CTT-Based Item Analysis

CTT has been widely used for decades and will continue to be the dominant theory in guiding scale development in personality assessment. The theory focuses on the total score of an assessment which is the sum of individual item scores. According to CTT, the information contained in this observed summated score comes from two sources: the actual level (or true score) of the trait and the error during the process of assessment. Therefore, the CTT approach to item analysis is to evaluate item discrimination and item difficulty so a to ensure that an item can provide the most information concerning the true level of the trait while creating minimal error in the assessment.

Under CTT, item discrimination is evaluated through item-total correlation. Because CTT assumes the total score as an approximate estimate of the true level of the trait, an item would contain high levels of information on the trait if it is highly correlated with the total score. Item-total correlation is often used in combination with analysis of internal consistency

reliability (i.e. Cronbach's alpha) by comparing the alpha coefficients. If an item has a low item-total correlation and the alpha coefficient increases when this item is removed from calculation, then it would be flagged for revision or removal from the item pool.

With CTT, item difficulty is evaluated through the mean of the responses to an item. In tests of ability where correct answers are involved, the lower the mean, the more difficult the item. In such tests, an extremely difficult item will provide little information because most of the intended sample would fail to respond correctly to this item. Similarly in personality assessment, the mean of the responses to an item represents the range of the traits within which the item will provide information. Therefore, the purpose of examining item difficulty is to identify the items that have a particularly extreme level of means for the responses. These items then can be flagged for modification or removal because they may only provide information for levels of the trait that are more extreme than most of those observed in the intended sample. In most cases of personality assessment, an instrument is often developed to measure traits at all levels. Therefore, it is important for the instrument to have items with a range of low, moderate, and high difficulty.

IRT-Based Item Analysis

IRT refers to a wide range of mathematical models that are relatively new but have been increasingly used in test construction. Unlike CTT's focus on the total score of an assessment, IRT approaches focus on the relationship between a response to an item and the probability of such a response in tapping into the latent trait that the assessment intends to measure. IRT assumes that the response an individual may give to an item is a function of the level of his or her latent trait. Therefore, item analysis under IRT focuses on fitting a mathematical function that characterizes the relationship between the item response and individual differences on the latent trait. Each item has its own characteristics or functions in relation to the latent traits and such characteristics or functions are displayed through item characteristic curve (ICC). The goal of IRT-based item analysis is to find a model such that the estimated ICC best represents or fits the observed item response data.

IRT-based item analysis often involves evaluation on two types of parameters, *a* parameter, and a set of *b* parameters, representing item discrimination and item difficulty, respectively. The *a* parameter, also known as the discrimination parameter, is an estimate of item discrimination, which determines the steepness of the ICC. The greater the *a* parameter, the steeper the ICC, and the greater the item discrimination. The *b* parameters are estimates of item difficulty of transitioning from one level of a trait to a higher level of a trait. Therefore, the *b* parameters, commonly referred to as location or transition parameters, determine the location of the ICCs along the latent trait continuum. It is beyond the scope of this entry to explain in detail the calculation and interpretation of these parameters, but readers can read a chapter by Randall Penfield (2013) on item analysis for procedures and examples in IRT-based item analysis.

CTT and IRT approaches to item analysis each have their own advantages. CTT has the advantage of having simple procedures and requires relatively small sample sizes for adequate estimates of item discrimination and item difficulty. IRT has principles that are more theoretically and empirically justifiable and has a greater potential in solving practical problems in assessment, such as reducing the length of assessment. Under IRT, item sequence can be individually tailored to the test taker's latent trait levels based on prior

responses. This allows for a more flexible and efficient format of administering the assessment such as the computer adaptive testing (CAT).

Further Considerations and Strategies

Item analysis serves to flag suspected items for revision or removal from item pools based on item discrimination and item difficulty. However, the decision to retain or remove an item should not rely on these indexes only, but rather take into account other contextual factors such as the content domain of the trait, purpose of the assessment, its intended population, and practical constraints.

One important consideration is that removing an item may affect the validity of the assessment. Items should adequately represent the content domain of the trait intended for assessment. Removing an item may reduce the representation of a particular domain so the item may better be retained even though it may have less discrimination. Although high discrimination is desirable, having all or most of the items with very high discrimination does not necessarily ensure the quality of the assessment. When all or most of the items have very high item-total correlations, these items are highly inter-correlated and do not provide much more information than one single item. Such a high inter-item correlation may also suggest that the domain content of the trait has not been adequately sampled by these items. While having all the items highly inter-correlated will enhance the internal consistency reliability, it may compromise the validity of the assessment because these items may only represent a specific narrow range of the content domain. Therefore, it is important to evaluate to what extent these items have covered the range of the domain trait and if additional items are needed to cover other aspects of the trait.

Another strategy to ensure the validity of the assessment is to correlate item responses to some external criteria. While an item can be evaluated through its correlation with the assessment's internal criteria (i.e. the total score), similar procedures can be used with external criteria. An item having a high correlation with an external criterion, such as actual performance or observed behavior typical of the trait, will contribute to criterion validity of the assessment. Furthermore, factor analysis can be used to examine the item in regards to the construct validity of the assessment if the trait can be conceptualized as having a structure comprising some sub-traits. Evaluating the item's factor structure coefficient, commonly known as factor loadings, can reveal the extent to which the items are related to each other in a manner consistent with the intended structure.

Fairness is an important issue in assessment. The fairness of an item concerns whether its content is invariant across different demographic groups, or biased toward certain groups. For example, item familiarity can affect the fairness of an assessment. If an item is unfamiliar to a minority group, then examinees from this group may not respond to the item in the same manner as those who are familiar with the item, assuming they are at the same level of the trait intended for assessment. While the fairness issue of an item can be examined qualitatively through an expert's judgment, it can be empirically tested with differential item functioning (DIF) analysis. DIF analysis, an approach based on IRT, compares the ICC between the focal group and the reference group. Items with significantly different functioning across the groups are flagged for further revision or removal from item pool.

See Also

Computer Adaptive Testing (CAT)

Reference

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Reliability, Issues of

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Reliability Defined

Reliability is a measure of the consistency of a test. For example, a ruler to measure length yields the same measurement on repeated trials. It is consistent. Reliability is a necessary, but not sufficient condition for validity. If the ruler were used as a measure of weight instead, although the measurements would not be an accurate representation of weight (i.e. valid), the measurements would be consistent on repeated trials (i.e. reliable).

Early conceptualizations of reliability can be traced back to Charles Spearman (1904, 1907, 1910). Theoretically, a person's test score (X) is equal to the individual's true score (T) plus a random error score (E). This idea can be represented by the equation

$$X = T + E.$$

A true score is the average score that would obtain if an individual were administered a test an infinite number of times. The average error score over repeated testings is expected to be zero. The total variance of a test in a population of individuals is equal to the variance of the true scores plus the variance of the error scores. Hence, the reliability of a measure can be conceptualized as a ratio of the true score variance to the total variance (i.e. the variance in observed scores).

Because true scores and error scores are hypothetical, they cannot be directly observed. Therefore, the reliability of a test cannot be empirically derived; it must be estimated. Several different methods have been proposed for estimating reliability. These methods fall under for general categories, namely inter-scorer reliability, test-retest reliability, alternate forms reliability, and internal consistency reliability. All of these will be described, as well as generalizability theory.

Types of Reliability

Inter-scorer reliability is an estimate of reliability that can be calculated if the types of scores that are obtained from the test are observer ratings. There should be at least two different raters and it is best if the raters are blind to the ratings of one another. The calculation of inter-scorer reliability depends on the level of measurement for the ratings. If the ratings are on a nominal or ordinal level, then the percent agreement can be computed. A Pearson correlation can be computed when there are two raters and the ratings are on an interval or ratio scale. If there are more than two judges who rate using an interval or ratio scale of measurement, then an intraclass correlation can be computed.

Test-retest reliability is computed simply as a Pearson correlation between a measure that has been administered to the same sample of individuals at two different time points. Ideally, the time spread should be chosen to allow for full decay of memory for the responses given on the first testing, although this might not be possible practically. The most commonly used time span is a two-week interval. High test-retest reliability is evident when there is a strong positive correlation between the scores obtained from the two testings. Test-retest reliability assumes that the construct being measured by the test is a stable trait. There are attributes that may not to be stable over time (e.g. mood) and test-retest estimates would suggest low reliability for measures of these constructs. Carry-over or practice effects from one testing to the other may also cause the test-retest estimate of reliability to be incorrect or attenuated.

Parallel forms reliability are computed as the correlation between two parallel forms of a measure. Two tests are considered parallel if: (1) they measure one and only one common factor, (2) the original test and the alternate form have the same standard deviations, (3) the original test and the alternate form have the same correlations with a set of true scores, and (4) the variance in each test not explainable by true scores is due to random error. Tests may also be parallel in content. In the case of content-parallel tests, the item contents are equivalent across tests but not necessarily within a test. If items are parallel across tests, but are not parallel within a test, it can be found that a test has parallel forms reliability but has low to zero internal consistency reliability.

Estimates of reliability as internal consistency most often include the split-half reliability coefficient (Spearman, 1910), the Kuder-Richardson 20 coefficient (KR-20; Kuder & Richardson, 1937), and the coefficient alpha (Guttman, 1945; Cronbach, 1951). To obtain a split-half reliability coefficient, the test is administered to a sample of participants, and then split into equal halves and scored. There are several ways in which one can split a test in half, such as an odd-even split. If the variances of scores for the two half tests are equal, the split-half reliability coefficient may be computed by calculating a Pearson correlation between the two half-test scores. Because correlations are calculated between half tests instead of full-length tests, reliability will be underestimated. Therefore, the Spearman-Brown prophecy formula can be used to derive the reliability of the whole test, based on the half-test correlation coefficients.

If, on the other hand, the variances of the two half tests are not equal, the Kuder-Richardson-20 (KR-20) formula can be used to estimate reliability. In calculating this reliability coefficient, it is assumed that that all items measure the same factor (Kuder & Richardson, 1937). If the assumption of equal standard deviations is also made, the

resulting estimate is equal to what would obtain if a split-half reliability coefficient were computed (corrected for by the Spearman-Brown formula). The KR-20 estimate of reliability is applicable for items that are dichotomously scored. For multichotomous or quantitative items, the KR-20 is referred to as coefficient alpha. Cronbach (1951) showed that coefficient alpha is the average of all possible split-half coefficients (uncorrected for by the Spearman-Brown formula). Therefore, KR-20 and the split-half coefficient are particular cases of alpha.

The internal consistency coefficients of reliability discussed thus far make the assumption of a one common-factor model, but they do not provide a test of whether a set of items measures one and only one common factor reliably; rather, they are estimates of reliability that provide an index of the common-factor concentration among the items in a test – i.e. the extent to which the items measure "something" in common and this something could be multidimensional (Cronbach, 1951; McDonald, 1999). The coefficient omega, on the other hand, is an index representing the extent to which a set of items measures one and only one common factor. Omega is an internal consistency reliability coefficient based on the parameters of a single factor model. The factor loadings and unique variances can be obtained by fitting a single-factor structural equation model to the sample covariance matrix to compute omega.

The coefficient alpha has been described as a lower bound for omega (McDonald, 1999). However, it is not necessarily the case that in practice coefficient alpha will be found to be lower than omega. There are instances when coefficient alpha can be larger (when the items measure more than one common factor) than omega and instances when it may be smaller (e.g. when the items measure one common factor) than omega (Horn, 2005). McDonald showed that the value for alpha equals the value of omega, if and only if the factor loadings are the same for all the items in the measure.

Finally, under the classical measurement theory of reliability, error components are undifferentiated. Error, however, is not a unitary construct. There can be several sources of error in any measurement. Although this fact was acknowledged in earlier works (e.g. Spearman, 1904; Guttman, 1945), the estimates of reliability that are derivable under classical test theory do not allow an estimation of the possible different sources of error variance in a measure. An alternative conceptualization of reliability is reliability as generalizability, for which the estimates of reliability do take into account different sources of error variance.

In conclusion, since the time of Spearman, various concepts of, and methods for, assessing the reliability of a measure have been developed. In some instances, one estimate of reliability may be a more appropriate measure of reliability than another. Furthermore, use of one coefficient may indicate low to zero reliability of a test while another coefficient may indicate high reliability. For example, a measure can have high test-retest reliability and a low coefficient alpha or vice versa. For instance, a scale to measure mood may be shown to be reliable in that it is internally consistent and measures one and only one common factor (i.e. mood). The same test may be found to have low to zero reliability if the test-retest method is used, since mood is not a stable attribute. Each reliability coefficient has its own meaning and value. The meaning and value of each of the coefficients should be carefully considered in evaluating and describing a test.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Lee J. Cronbach
Validity, Issues of

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Issues of Response Styles

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Response Bias

Response bias occurs when factors outside of what the researcher intends to measure influence the respondent's answers to survey items. These factors increase the chance for error and data contamination leading to incorrect conclusions. Response bias may arise intentionally or unintentionally and is derived from a mixture of response styles and response sets. Response styles are related to the respondent's characteristics which lead the respondent to distort their approach to the given assessment procedure. Responding to items in a way that follows social norms instead of one's true opinion is an example of a response style. Response sets are response distortions that are related to the procedure, assessment, or situational circumstances. For example, having a survey that is too long can cause respondents to become tired of answering questions toward the end of the survey, resulting in less accurate responses. Response sets are temporary (e.g. reacting to the length of a survey at the end of a long day), while response styles are stable over time (e.g. a respondent's trait level of agreeableness). However, the definitions of response styles and response sets are inconsistent across the literature and are sometimes used interchangeably.

The Question-Answer Model

In *Thinking about Answers: The Application of Cognitive Processes to Survey Methodology,* Sudman, Bradburn, and Schwarz (1996) discuss the Question-Answer Model which illustrates the cognitive process of answering survey items and provides one reason why response styles and response sets occur. Respondents begin by interpreting the question at hand (i.e. reading and determining what they think the question is asking). They put their cognitive processes into gear when looking for information to form an answer (i.e. trying to recall a memory or decide on an opinion). Respondents create judgments about what to include to answer the question appropriately (i.e. how much detail to provide). Afterwards,

they edit the answer to fit the context (i.e. choosing the correct answer from close-ended response choices). Respondents' invested cognitive involvement can differ based on how much thought, time, and effort they are willing to put into this process. If their motivation and abilities are low and the question is difficult, the participant is more likely to satisfice or provide a "good enough" answer rather than an accurate answer (Engel & Köster, 2014).

Response Styles

Personality research is most concerned with four major response styles – extreme response styles, mid-point or mild responding, acquiescence, and social desirability (including faking and malingering), all of which can be exacerbated by satisficing (Engel & Köster, 2014; Helmes, Holden, & Ziegler, 2015; Paulhus & Vazire 2007). An extreme response style is the respondent's tendency to answer items using the extreme ends of a scale (e.g. strongly disagree or strongly agree). Rather than focusing on the extreme ends, mid-point responding is such that the respondent answers items using the mid-scale option (e.g. neutral, neither agree nor disagree), whereas mild responding is the tendency to avoid using scale extremes (e.g. agree, disagree).

Acquiescence occurs when the respondent is inclined to agree with survey items despite content and actual opinions (e.g. agree or strongly agree), whereas disacquiescence or reactant individuals choose to disagree despite content (e.g. disagree, strongly disagree). Acquiescent and disacquescient response styles are more likely to occur in two-choice scales (e.g. yes-no, true-false) or when the question is ambiguous or vague. Acquiescence varies most across cultures because of the different emphasis on the value of the trait agreeableness (Johnson, Kulesa, Ik Cho, & Shavitt, 2005); thus it is important to identify cultural norms when designing personality research.

Finally social desirability responding is of great concern to researchers as it can be caused by a multitude of factors. Social desirability responding is when the respondent tries to make themselves "look good." Current research has found that social desirability responding can be best explained by self-deception (e.g. respondents believe positive self-reports) and/or impression management (e.g. exaggeration, faking, or lying, in self-reports; Helmes et al., 2015). While self-deception is unintentional, in impression management, the respondent intentionally gives a false response. This can be either "faking good" which is giving the most positive response, or "faking bad" which is giving the most negative response, also known as malingering.

Response Sets

Response sets are the result of external dispositions, such as issues with the construction of the survey or the setting in which the survey takes place. There are two main concerns with survey construction – response order and question wording.

The presentation of response options, known as response order, may influence the way in which respondents answer questions. For example, if questions are presented to participants on show cards, primacy effects can occur because items presented earlier have deeper cognitive processing (Krosnick & Alwin, 1987). This can also cause satisficing because if participants are

offered a large amount of responses, they may choose an answer that is just satisfactory. On the other hand, when questions are read orally, participants have less time to process all of the response options, thus leading them to choose the most recent option they heard, known as the recency effect (Krosnick & Alwin, 1987). When participants are given surveys, they have the autonomy to decide which questions they answer first; thus the measures that are completed at the beginning will probably have been given more thought than the ones completed at the end.

Bradburn, Sudman, and Wansink's (2004) book, *Asking Questions,* identifies several concerns with question wording including loaded questions, leading questions, and offensive language. Loaded questions contain biased wording of a controversial question. For example, "*Do you find your financial aid package to be fair?*" is not considered loaded, while "*Do you feel cheated due to your financial aid package?*" implies that something negative is occurring. Leading questions use wording and phrases to sway a participant to a desired response to support the researcher's position. For example, "*Did the man with the brown hair hit you?*" suggests a man with brown hair is the culprit, whereas "*Who hit you?*" is open for the respondent's interpretation. Double-barreled questions include more than one topic in a question, but only allow for one answer. "*Do you enjoy the summer and going to the beach?*" incorporates two questions into one. Additionally, using offensive language may bias certain socio-economic or cultural populations' responses, while complex wording may cause participants to use satisficing.

Other potential concerns with response sets include the setting of the data collection (i.e. taking a survey in a loud room), interviewer/data collector's experience (i.e. having a data collector who is not able to answer participants' questions or alleviate concerns), or length of the study (i.e. extensive questionnaires or timely interviews).

Distinctions between Response Styles and Response Sets

Response sets may be interrelated with response styles, making the distinction between the two unclear. For example, taking a personality measurement for a new job could increase social desirability bias, thus both setting and personal characteristics are at play. Extreme responding could be related to an individual's personal characteristics or it could be related to an individual's frustration from a long assessment which leads to satisficing. Kieruj and Moors (2013) examined this distinction and found that extreme responding occurred regardless of the response scale's length. Extreme responding was linked with multiple personality factors such as extraversion, intelligence, strongly opinionated, etc. The study concluded that the extreme response style is a *response style* and not a *response set*. More research is needed to understand the distinctions between response styles and response sets.

Controlling for Issues of Response Styles and Response Sets

Research has identified several ways to control for issues of response styles and response sets to help elicit more accurate conclusions (Paulhus & Vazier, 2007). Determining how a study is going to control for response styles and sets *before* collection takes place is important, because the least effective way is to control for it later. One method of control is

ensuring participants' anonymity, which can reduce social desirability and other response styles. While administering a test, rushing through the instructions, emotional arousal, and distractions should be minimized to reduce stress. Other methods are related to the test construction process. For example, when writing questionnaires, items should be clear and unambiguous. The questionnaire should also be concise, so the respondent does not get tired of answering the questions and satisfices.

To control for extreme responding, a dichotomous scale may be used (Paulhus & Vazier, 2007), although this can increase the chance of acquiescence. There are no standardized instruments for assessing extreme responding. Furthermore, acquiescence may result in inflated correlations (Paulhus & Vazier, 2007). To prevent this, reverse scoring can be used, with some items having the higher rating equaling possession of a trait and some items having the lower rating equaling possession of a trait. Thus, the respondent must agree with some and disagree with others to receive a high score in the trait the survey is measuring. If they agree with the question, "*I enjoy most outdoor activities*" then they should disagree with the question, "*I prefer to spend my time indoors.*"

Direct approaches to reducing social desirability would be to emphasize confidentiality, build rapport with the participant, and appear non-judgmental. Answers may also be forced choice, with a dichotomous scale in which both responses are considered socially desirable. An example is "*Would you prefer a partner that is a) active or b) intelligent?*" Using scales such as a lie scale or scale measuring social desirability responding can further assess the validity of the respondent's answers (Paulhus & Vazier, 2007).

Most personality batteries include validity subscales that help researchers catch response style issues. Helmes and colleagues (2015) review nine commonly used impression management and response bias scales, including the Minnesota Multiphasic Personality Inventory's (MMPI) revised edition which includes several measures to detect distorted response styles. The Eysenck Personality Questionnaire also includes a lie scale that accounts for a third of the questions to be forced in a positive direction. This aims at detecting "faking good." *Measures of Personality and Social Psychological Constructs* (2014) goes beyond issues of personality assessment and includes specific measurements such as those of emotion regulation and interpersonal styles, which could affect the validity of results (Boyle, Saklofske, & Matthews, 2014).

See Also

Acculturation Considerations in Personality Assessment
Item Analysis
Reliability, Issues of
Researcher Biases

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Responsibilities of Testing Professionals

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Testing refers to the use of instruments and procedures to measure psychological phenomena that cannot be directly observed such as cognitive abilities, personality traits and emotional states. It helps professionals make inferences and predictions about a person's functioning, and is often used as part of a comprehensive assessment process to answer specific referral questions such as whether a candidate is a good fit for a job, or the nature and extent of a client's academic or mental health strengths and challenges. As such, testing can have a significant and oftentimes long-term impact in people's lives, and must be conducted responsibly to ensure the process will result in valid conclusions, appropriate decisions, and helpful recommendations.

Testing enhances the assessment process when conducted skillfully and responsibly but can be ineffective, or even detrimental to test takers, under conditions that compromise the process' integrity. Examples of these conditions are (1) when instruments are poorly constructed, or are used in inappropriate contexts or with unintended populations; (2) when users do not have sufficient training or experience with testing or have limited knowledge of the instruments they use; (3) when test takers are not well informed of the purpose of testing and the procedures involved, such that they are unable to provide informed consent or perform optimally during administration; or (4) when raw data, protocols, reports and other testing materials are inappropriately handled, disclosed without clients' consent, or made available to individuals who are not trained to interpret or use them effectively.

Concerned with the potential for misuse of tests, several professional organizations in education, counseling and psychology have developed guidelines for testing professionals to encourage responsible testing practices (e.g. the American Counseling Association, the American Educational Research Association, the American Psychological Association, and the National Council on Measurement in Education). Testing professionals are considered those who develop tests and other testing materials, such as test manuals and computer scoring systems (*test developers*); those who select and administer tests to clients, interpret data, and produce integrated reports (*test users*); and those who are trained to use

testing information to form impressions and make recommendations or decisions that will impact test takers (*information users*) (APA, n.d.). The following sections discuss the responsibilities of testing professionals in three main areas: professional qualifications; selection, administration and interpretation of tests; and handling of testing data. The following discussion applies primarily to test and information users. Readers seeking guidelines for test developers may refer to the *Handbook of Test Development* edited by Steven Downing and Thomas Haladyna.

Qualifications of Testing Professionals

Testing is a complex professional activity involving multiple tasks, each requiring specific knowledge and skills that take a significant amount of training and practice to develop and master. Different tasks may be performed by a single person or by different individuals working as a team. For example, one professional may be responsible for reviewing referral information and deciding which tests should be used, another for administering and scoring the tests, and another for interpreting the data and writing the report. Regardless, all professionals involved in the testing process are responsible for acquiring the competencies they need to perform their role. Some tasks may be performed by professionals with limited training and experience if supervised by a fully qualified testing professional (e.g. test administration and scoring).

Standard test user qualifications vary depending on the type of tests being used. For example, personality and intelligence assessment measures are often used as diagnostic tools in clinical or counseling psychology practice and typically require several years of graduate level training and experience to administer, score, and interpret. In contrast, rating scales designed to measure specific behaviors, such as smoking or exercising, can be aptly used by well-trained professionals with a Bachelor's degree to screen for cases that need follow-up by a specialist. Moreover, testing is performed by professionals from various disciplines, with different educational backgrounds and for different purposes (e.g. educators to make school placement decisions, vocational counselors to help inform clients' career choices, forensic psychologists to make recommendations regarding custody arrangements); thus, qualifications can also vary depending on the context or setting in which tests are used.

There are however general areas of competence all testing professionals must master regardless of field of expertise or areas of practice. For example, testing professionals must have knowledge of theories of measurement and test construction, understand principles of test reliability and validity, and be able to recognize the strengths and limitations of different types of assessment instruments (e.g. semi-structured interview, self-report, projective, task completion). They must also be familiar with a range of tests used in their area of specialization, be fully competent in standard administration and scoring procedures for tests they use routinely in their practice, and know when it is appropriate to deviate from standard practice to meet the demands of atypical testing situations or the needs of individuals with disabilities (e.g. providing written, instead of oral instructions to test takers who are hard of hearing).

Tests were historically developed, administered and interpreted without consideration of socio-cultural variables impacting test takers' performance, resulting in the systematically biased and unfair use of tests with racial, ethnic, gender, and linguistic minorities. Nowadays the field recognizes that socio-cultural variables have an inescapable influence in the testing process – from test development to decision making – and that efforts must be made to account for them. For example, testing professionals should recognize that behaviors one considers normal, typical, or functional in one socio-cultural context may be cause for concern in another, and exercise caution when interpreting test data (e.g. an inquisitive and assertive child may be perceived as emotionally healthy in one context and defiant or disrespectful in another). All testing professionals are therefore responsible for acquiring knowledge of cultural and linguistic diversity issues in testing, developing competencies for working with individuals of diverse backgrounds, and keeping aware of their cultural blind-spots. For further discussion on the impact of socio-cultural variables in assessment, see Acculturation Considerations in Personality Assessment and Culture-Free/Fair Intelligence Testing in this volume.

Lastly, it is common for testing professionals to specialize in a specific area of practice and have little or no training in other areas. They are responsible for recognizing the bounds of their training and experience, and seek consultation with other professionals if they must take on a testing assignment which they are not fully prepared to handle on their own. Additional formal training and supervised experience may be required if they want to expand the scope of their practice to a completely new area (e.g. a professional with expertise in personality assessment who wants to expand her practice to neuropsychological testing). They are also responsible for keeping up to date with developments in their areas of specialization, and obtaining continuing education for new or updated tests used in their practice.

Selection, Administration, and Interpretation of Tests

Multiple factors must be taken into account when making decisions about test selection, such as the purpose of the assessment, the specific referral question, the characteristics of the individual or group of individuals being assessed, the strengths and limitations of various types of tests, and how each contributes to the assessment process to form a comprehensive understanding of the test taker's strengths and challenges. Testing professionals should select tests that have well-established reliability and validity for assessing the constructs or domains of interest, that are relevant given the purpose of the assessment, and that are appropriate for use with the individual or group of individuals being assessed.

Test takers' knowledge about and attitudes toward testing have a significant impact on their performance and the outcome of the assessment process. Test users are responsible for developing rapport with clients, preparing them for the testing situation, and ensuring all other testing conditions are met before proceeding with test administration. For example, testing should take place in a room that is well-lit and free of distractions, and when clients are feeling well and prepared to participate in all testing activities. Test users should also provide clients with information about the purpose of testing before test administration; and discuss the nature of the tests they plan to use, what will be done with the results,

and how and when clients will receive feedback. They are also responsible for informing clients of their rights and responsibilities, discussing limits to confidentiality, and obtaining informed consent (and assent when appropriate), except when testing without consent is mandated by law.

Interpretation of testing data should proceed carefully, taking into account information obtained from multiple sources, such as clients' self-report at intake, behavioral observations, review of records, consultation with other professionals, and interviews with other informants (e.g. family members). Test users' broad knowledge, acquired over years of professional training and experience, has the greatest impact at this stage of the assessment process. They must rely not only on the test results but also on what they know about typical human development, psychopathology, multicultural psychology, and other areas of science and practice to make sense of the data. Test users must also consider their clients' current life situation, their motivations to seek services, and their attitude toward testing to determine whether the test results are valid. Test interpretation therefore requires a sophisticated skill set – the ability to review and integrate large amounts of qualitative and quantitative data from various sources, evaluate the client's performance from both nomothetic and ideographic perspectives (i.e. normative and individualized), and form a multidimensional impression of the client's current level of functioning in the domains of interest (e.g. personality, cognitive).

Handling of Testing Data

Testing data are considered sensitive client information and must be handled in a manner consistent with both legal and ethical guidelines. Testing professionals must be knowledgeable about what constitutes testing data, how such data should be stored and protected, and in which circumstances they can be released and to whom. Testing data include any information obtained during the assessment that is specific to the client, such as the client's responses, the assessor's notes, the client's raw and scaled scores, and computer generated summaries. Test materials (e.g. questionnaires, response booklets, manuals) are typically not considered testing data but they become data when containing client information.

Testing results should be described to clients in a comprehensive report, written in language free of jargon, to provide them with an integrated summary of findings, conclusions and recommendations that directly address the referral question. Testing data, without interpretation, should not be released to clients and individuals who are not trained to interpret or use them effectively. They should be kept in the client's file in a secure location, along with other confidential client information protected by law and ethical principles of professional conduct. Upon request, testing professionals may release testing data to a client, whomever the client designates, or to an entity cited in a legal document (e.g. subpoena enforced by court order); but discretion in releasing the data without interpretation must be exercised as there are circumstances when it may be appropriate to withhold testing data or components of the data. For instance, if there is evidence to suggest that releasing testing data to a client may compromise the client's safety, a compelling argument can be offered for denying the request. In situations when professionals believe that withholding data is the most appropriate course of action, they should seek consultation about the potential ethical and legal ramifications of such decisions, which may vary by state.

Conclusion

Testing can improve assessment when conducted competently and responsibly. The appropriate selection, administration, and interpretation of tests – as well as the appropriate handling of test data – is therefore the responsibility of testing professionals. Careful consideration must be given to numerous factors that can potentially impact the validity of testing protocols and their ethical use. As the field continues to evolve, testing professionals must keep well informed of current best practices in their areas of expertise, and remain aware of potential new ethical challenges (e.g. expansion of telehealth and increased demand for remote administration of tests).

See Also

Acculturation Considerations in Personality Assessment
Culture-Free/Fair Intelligence Testing
Rights of Test-takers Informed Consent, Confidentiality, Invasion of Privacy

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Rights of Test-takers

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In conducting scientific research, scientists face a variety of ethical dilemmas. Because research is a complex process, well-intentioned investigators can overlook the interests of research participants, thus harming participants, and over time, causing harm to scientists, science, and society. Given the importance of ethics for the proper conduct of research, it is not surprising that many professional associations, government agencies, and universities have adopted specific rules and policies relating to research ethics. Foremost among these codes is the Declaration of Helsinki developed by the World Medical Association and later extended to cover social and behavioral science research. The declaration states that "concern for the interests of the subject must always prevail over the interests of science and society." In the United States, the National Commission for the Protection of Human Subjects of Biomedical and Behavior Research was created and is best known for the Belmont Report. This report identified three basic ethical principles and their application to research: respect for persons, beneficence, and justice.

Researchers who use tests to study human behavior have professional and legal responsibilities to those participating in their research study. As noted by the APA report on the rights and responsibilities of test-takers, these ethical and legal responsibilities must be disclosed to research participants in order to create a bond of trust between the participant and the researcher.

Five Fundamental Principles that Address the Rights of Test-takers

- Participants taking a test for research purposes must do so voluntarily and not as a result of coercion, either with the promise of inappropriate rewards or punishments.
- Test-takers need to be appropriately informed about the purpose of the test and how their personal information and test results will be used and protected.

- Test-takers should be protected from harm or any possible disadvantage as a result of taking tests for research purposes.
- Test-takers' privacy shall be protected and all personal information will remain confidential and secure.
- In order to create a climate whereby individuals are willing to participate in research, the procedures should attempt to ensure that participants are satisfied with the research experience. To do this, test-takers should be treated with courtesy, respect, and impartiality.

Five Fundamental Principles that Guide the Actions of Test Administrators

- Test administrators must be honest, transparent, and straightforward, although they are not required to divulge the hypotheses being tested in the study.
- Test administrators will subscribe to a code of conduct that requires integrity, objectivity, and quality.
- Test administrators are required to exercise judgment that is independent and professional in the design, conduct, analysis, and reporting of their research projects and activities.
- Test administrators must use tests that meet professional standards and are appropriate such as those described in the AERA, APA, and National Council on Measurement in Education's Standards for Educational and Psychological Testing, and must have appropriate training, qualifications, and experience.
- Test administrators must comply with all applicable national and international regulations governing research activities.

Testing professionals include those who develop tests, those who sell them and those who select the tests to be administered, test administrators, and those who score the tests and interpret the results. There are several sources that describe the specific responsibilities of those in the testing business who do not interact directly with test-takers, including the American Association for Counseling and Development (1989) and the Joint Committee on Testing Practices (1988).

Test-takers, along with all participants in research, are protected by additional ethical principles including those that guide the selection of participants, informed consent, confidentiality and privacy, testing vulnerable populations, and debriefing.

Recruiting Participants

One of the first ethical issues a researcher must address involves the recruitment of participants. In recruiting participants, researchers should be guided by the principles of autonomy, respect for persons, and beneficence. Specific ethical concerns with regard to recruiting participants include the use of inducements and coercion, consent and alternatives to consent, institutional approval of access to participants, and rules related to using student subject pools. It is important that researchers avoid "hyperclaiming," in which the goals the research is likely to achieve are exaggerated. It is also important that researchers do not exploit potential participants by offering inducements that are difficult to refuse.

At the same time, researchers must weigh the costs to the participant and provide adequate compensation for the time they spend in the research process.

Informed Consent

The cornerstone of ethical research is informed consent. In general, the informed consent process requires researchers to provide potential participants with information about the purpose of the research, methods to which the participant will be subjected, demands, risks, inconveniences, possible discomforts and possible outcomes of the research. Whether and how the results might be disseminated should also be described to the participant.

In all but minimal-risk research, informed consent is a formal process whereby the relevant aspects of the research are described along with the obligations and responsibilities of both the participant and the researcher. An important distinction is made between "at risk" and "minimal risk." Minimal risk refers to a level of harm or discomfort no greater than that which the participant might expect to experience in daily life. Research that poses minimal risk to the participant is allowed greater flexibility with regard to informed consent, the use of deception, and other ethically questionable procedures.

While most research with human subjects includes a documented informed consent process, it should be noted that federal guidelines permit documented informed consent to be waived if (a) the research involves no more than minimal risk to the participants; (b) the waiver will not adversely affect the rights and welfare of the participants; and (c) the research could not be feasibly conducted if informed consent were required.

Avoiding Harm: Pain and Suffering

Participants' consent is typically somewhat uninformed in order to obtain valid information untainted by knowledge of the researcher's hypothesis and expectations. Because of this lack of full disclosure, it is important that the researcher ensures that no harm will come to the participant in the research process. Types of harm that must be considered by the researcher in testing include psychological stress, feelings of having one's' dignity, self-esteem, or self-efficacy compromised, or becoming the subject of legal action. In addition to considering the potential harm that may accrue to the research participant, the possibility of harm to the participant's' family, friends, social group, and society must be considered.

While psychological research into certain processes, for example, anxiety, depends on the arousal of some discomfort in the participant, it is the responsibility of the researcher to look for ways to minimize this discomfort. Some ways that may minimize the psychological consequences of the discomfort include full and candid disclosure of the experimental procedures, providing opportunities for the participant to withdraw, and ensuring that there are no lingering ill effects of the discomfort. One particular type of lingering ill effect relates to the possibility of embarrassment that participants can experience as a result of their test performance during the research process. To protect participants from this type of harm, it is essential that researchers employ procedures to maintain confidentiality.

Maintaining Confidentiality

Confidentiality is a complex, multifaceted issue. It involves an agreement, implicit as well as explicit, between the researcher and the participant regarding disclosure of information about the participant and how the participant's data will be handled and transmitted. To avoid misunderstandings, the procedures a researcher intends to use to maintain confidentiality should be discussed with the participant prior to the beginning of data collection. The participant should be satisfied that the procedures will be sufficient to ensure his or her privacy. The participant has the right to decide what information will be disclosed, to whom it will be disclosed, under what circumstances it will be disclosed, and when it will be disclosed.

Participants must be informed about mandatory reporting requirements, for example, illegal activity, plans for sharing information about the participant with others, and the extent to which confidentiality can be legally protected. It is the responsibility of review committees to ensure that the proposed research procedures will not unintentionally compromise confidentiality, especially with participants who are vulnerable because of age, gender, status, or disability.

There are exceptions to the rule regarding confidentiality. The 1992 APA Code of Ethics allows for a breach of confidentiality to protect third parties, and several states have embraced the Supreme Court ruling in *Tarasoff v. Board of Regents of the University of California* (1976) that requires the psychologist to take reasonable steps to protect potential victims. Researchers not trained in clinical diagnosis can find themselves in a difficult position interpreting the likelihood of harm from the test results made by research participants.

Techniques to maintain confidentiality of data include data encryption and electronic security. While most quantified data are presented in aggregate form, some types of data such as video recordings and audio recordings require special care in order to protect participants' privacy. Distortion of the images and sounds can be done, but the most important safeguard is to obtain permission from the participant to use the material, including the dissemination of the findings.

Ethical Issues in Conducting Research with Vulnerable Populations

An important ethical concern considered by Institutional Review Boards is the protection of those who are not able fully to protect themselves. While determining vulnerability can be difficult, several types of people can be considered vulnerable for research purposes, including people who (a) either lack autonomy and resources or have an abundance of resources, (b) are stigmatized, (c) are institutionalized, (d) cannot speak for themselves, (e) engage in illegal activities, and (f) may be damaged by the information revealed about them as a result of the research.

One of the principal groups of research participants considered to be vulnerable is children and adolescents. In addition to legal constraints on research with minors adopted by the United States Department of Health and Human Services (DHHS), ethical practices

must address issues of risk and maturity, privacy and autonomy, parental permission and the circumstances in which permission can be waived, and the assent of the institution (school, treatment facility) where the research is to be conducted. Research with children is being conducted in what Moss and Petrie view as increasingly risky spaces. Homes, schools, and communities are popular sites of educational research, but are also the places where children are most likely to be exposed to forms of risk associated with cultural, social, political and economic forces that transform the child's understanding of the role of a particular space as a data gathering space.

Other vulnerable groups addressed in the literature include minorities, prisoners, trauma victims, the homeless, Alzheimer's patients, gays and lesbians, juvenile offenders, and the elderly, particularly those confined to nursing homes where participants are often submissive to authority.

During World War II, the United States made extensive use of prisoners. In response to a host of unethical research projects using prisoners, the Presidential Commission (n.d.) for the Study of Bioethical Issues recommended that prisoners could only be considered ethically acceptable as research subjects if the following three requirements were satisfied: (1) the reasons for involving prisoners were compelling, (2) conditions of equity in selection were observed, and (3) the prison lived in could be characterized by a great deal of openness in which a prisoner could exercise a high degree of voluntariness.

Alcohol and substance abusers and forensic patients present particular problems for obtaining adequate informed consent. The researcher must take into account the participant's vulnerability to coercion and competence to give consent. The experience of the investigator in dealing with alcoholics and drug abusers can be an important element in maintaining ethical standards related to coercion and competence to give consent.

One final vulnerable population addressed in the literature is the cognitively impaired. Research with these individuals raises issues involving adult guardianship laws and the rules governing proxy decisions. The question is: who speaks for the participant? Research with vulnerable participants requires the researcher to take particular care to avoid several ethical dilemmas including coercive recruiting practices, the lack of confidentiality often experienced by vulnerable participants, and the possibility of a conflict of interest between research ethics and personal ethics.

Debriefing

Debriefing provides the participant an opportunity to discuss the findings of the study. The need to adequately debrief participants in a research study is a clear ethical responsibility of the investigator although it is still the exception rather than the rule. Debriefing can serve four purposes. It can (a) remove fraudulent information about the participant given during the research process, (b) desensitize subjects who have been given potentially disturbing information about themselves, (c) remove the participants' negative arousal resulting from the research procedure, and (d) provide therapeutic or educational value to the participant. Even participants who are screened out of a study or voluntarily withdraw from a study should be debriefed and told why they might have been eliminated from the

study. It has also been suggested that a description of the debriefing procedure be included in any scientific publication of the research.

While the rights and responsibilities described in this entry are not legally based, they have been endorsed by the professional societies involved in psychological testing and by the institutions that employ those involved in the administration of tests. Those institutions include colleges and universities, schools, human service agencies, etc. The goal of the entry was to inform and to help educate both test-takers and test administrators about the ethical expectations involved in testing, especially testing for research purposes.

See Also

Abilities, General Features and Methodological Issues
Internet Research in Personality
Theoretical and Methodological Issues in Personality Research, General Concerns and
  Considerations

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Validity, Issues of

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Validity Defined

Imagine having a conversation with a friend. This friend tells you that she was cast as the lead actress in a new action packed thriller. You believe that the information given is accurate because your friend is trustworthy. In a similar vein, we can believe that results of psychological tests are accurate if those measures are trustworthy. This is the essence of test validity.

Whereas reliability is a measure of the consistency of a test, validity refers to the accuracy of measurement. A test's validity answers the question "Does the test measure what it is intended to measure?". Referring to the example above, validity coefficients provide a numerical value regarding the extent to which we can trust the results of a measure. At the most basic level, tests are validated by demonstrating that scores are true indicators of the presence of the trait or construct of interest.

There are several approaches to establishing test validity, but most methods involve obtaining a validity coefficient through performing correlational analyses. Though validity is usually obtained empirically, there is a special case of validity called face validity, which evaluates whether the test can be trusted at "face value." That is, does the test look like it is measuring what it is intended to measure? If so, then the test is said to possess face validity. For example, if the first question on a math achievement test is "5 + 4 = ____," one can conclude that the item looks like it measures math achievement. This seemingly superficial indicator of validity can affect the attitude of test takers toward a test. For example, if the first item on the math test instead stated, "Do you enjoy ham sandwiches?" the face validity of the test would be lower because the item does not appear to measure what it is intended to measure. Moreover, the test taker might not approach the test with the same level of seriousness, and ultimately, the results of the test may not be trustworthy. Thus, although, face validity is not quantifiable and is often not considered a real type of validity, it has important implications for other aspects of the test's validity.

One method of establishing whether a test is valid is content validity. Content validity provides information regarding the linkage between the content of the test and the definition of the construct that is being measured by the test. Content validity is especially important for achievement tests, which are intended to measure an individual's level of knowledge in some area. A two-way table of specifications that has two dimensions covering content topics and mental processes is typically used to represent a content area. In fact, Bloom's cognitive classification scheme is widely used, as it conveniently allows validity to be established by matching a test with the specifications of the table (Hogan, 2015). Content validity is also more easily applied to employment tests, where the content area is composed of information regarding the necessary skill set and knowledge required by a job. Although it is quite difficult to truly define the content area for most constructs, content validity is nevertheless an appropriate technique for assessing the validity of most tests. Content validity is not usually empirically determined; it is instead often determined by judgment of a panel of experts. Other methods for establishing validity are more readily empirically determined.

One such method is criterion-related validity, which involves comparing the examinees' test performance with other measures or procedures that have already been deemed valid (i.e., the "criterion"). There are two approaches to criterion-related validity, namely predictive validity and concurrent validity. Predictive validity is the extent to which a test score can predict status on some other criterion that will be achieved in the future, whereas for concurrent validity, test performance is correlated with current status on a criterion. In either case, a correlation coefficient is often computed.

Essentially, all validity evidence can be discussed in terms of construct validity. The goal of establishing construct validity is to determine the extent to which a test measures the intended construct, which sounds very much like the basic definition of validity. Evidence of content and criterion-related validity provide some evidence of construct validity, but there are several additional ways to establish construct validity.

For example, construct validity can be established using another test. In this manner, test scores from another test that has already been deemed valid are correlated with scores of the focal test. If scores from the focal test correlate well with scores from an already established test measuring the same construct, then the new test is said to have convergent validity. In addition to demonstrating that a test is measuring what it purports to measure, it is also useful to demonstrate that a test is *not* measuring another construct. Discriminant validity refers to the lower correlation between the focal test and a criterion test that *does not* measure the same construct of interest. For example, one may want to demonstrate that a test designed to measure personality is *not* measuring depression. Scores from the personality test should correlate more strongly with another personality test (convergent validity) than with a test measuring depression (discriminant validity). Discriminant validity provides researchers with information regarding how much the test differs from a test measuring a different construct. A multi-trait multi-method approach can be used to simultaneously confirm the convergent and discriminant validity of a test (Campbell & Fiske, 1959).

Construct validity can also be assessed by examining the internal structure of the test; intervention or experimental changes; developmental changes; or group differences (Hogan, 2015). More specifically, factor analyses can be conducted to determine the underlying dimensions of a test. Construct validity can also be investigated with experiments or interventions. If the construct that the test is intended to measure is subject to

changes due to interventions or experimental manipulation, then an experiment or intervention can be conducted to see if after the intervention individuals in the experimental group score differently compared to those in the control group. If the construct is subject to developmental or age changes, then a study examining age differences in scores or age changes over time can be conducted to establish construct validity. Lastly, if certain groups are expected to differ on the construct, then a study can be conducted to examine group differences on the test. To the extent that expected group differences are observed on test scores, then there would be some evidence of construct validity.

In sum, validity is perhaps the most important aspect of tests. Validation is an on-going process, and a test can be valid for some purposes (e.g. for use with children), but not for other purposes (e.g. for use with adults). Content validity, criterion-related validity, and construct validity are all classic methods of providing evidence that a test is valid.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Reliability, Issues of

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Aggressiveness, Assessment of

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Within the literature, aggression is defined as behavior intended to cause harm, injury, or pain to others through physical, verbal, or indirect means. Although often assessed simultaneously, aggression differs from constructs such as anger or hostility which are typically antecedents of aggression. Violence also differs from aggression as it is characterized as (1) a behavioral response in reaction to an emotional response to anger and (2) a cognitive reaction hostility in situations usually characterized by annoyance, frustration, or perceived wrongdoing. Additionally, violence is often classified as a more extreme aggressive act that is physical in nature resulting in substantial harm or injury to oneself or another person. Despite the varying conceptual distinctions between these constructs, the overlap and colloquially understood uses for them influence common assessments of aggression to co-assess and/or include the constructs of anger, hostility, or violence.

Aggression can be assessed through a variety of research tools including self- or other-report questionnaires and/or interviews, projective tests, and behavioral measures. In addition, aggression can be assessed through observational studies in which trained observers determine an operational definition of aggression (e.g. number of times hit or kicked, number of times rumors are spread) and then observe and record the target person's behavior. In this entry, we define aggression and seek to provide examples of commonly used self- and other-reports and behavioral assessments; we omit projective tests from this entry due to the infrequency of their use. The highlighted entries are not an exhaustive collection of aggression assessment tools but rather are meant to provide a brief introduction to frequent assessments used.

Forms of Aggression

Given the numerous scenarios from which aggression can arise, the literature suggests various ways to conceptualize aggression. First, aggression can be defined based on the time frame during which aggressive behaviors occur. That is, those aggressive behaviors that are acute or isolated are known as *state* aggressive behaviors. Behaviors such as these are usually attributed to situational circumstances. In contrast, aggressive behaviors that persist over longer durations of time are known as *trait* aggressive behaviors and are often attributed to an individual's personality.

Second, aggression can be defined based on whether the target is physically present (i.e. whether the target is present and is intending to harm the individual). Such cases are known as *direct or overt acts of aggression* (e.g. hitting someone, verbal insults). In contrast, aggressive behaviors that occur when the target is not physically present are known as *indirect or covert aggression* (e.g. spreading rumors). This form of aggression is intended to harm the target by damaging the target's social standing or reputation. *Displaced aggression* occurs when aggressive behaviors are directed at a third, uninvolved party.

Finally, aggression can be defined based on the primary motivation. Aggressive behaviors that are premeditated and planned are referred to as *instrumental or proactive aggression*; this form of aggression is typically motivated by a desire to obtain a particular outcome (e.g. increase perpetrators' status or power or to gain money or recognition). Although targets are harmed by this type of aggressive behavior, the primary motivation of the aggressor is to reach a particular outcome rather than inflict harm or cause the target pain. Aggressive behaviors that are impulsive and unplanned are referred to as *reactive or hostile aggression*; this form of aggression is motivated by emotions such as anger or hostility and is primarily intended to inflict harm on the target.

Self-reports of Aggression

It is worth noting that although aggression is often conceptualized in the above ways, there is substantial overlap in the forms of aggression. For example, overt aggression can be reactive or instrumental in nature. Assessments of aggression often measure multiple dimensions of aggressive behaviors. In this section, we highlight examples of common self- and other-reported assessments of aggression.

The Aggression Questionnaire (Buss & Perry, 1992) is a 29-item scale used to assess trait levels of physical aggression, verbal aggression, anger, and hostility. The Life History of Aggression interview is used to assess the frequency of aggression (i.e. verbal aggression, aggression directly at objects, non-specific fighting, and physical aggression) across a person's life.

The Positive and Negative Interpersonal Behaviors Inventory is a 40-item scale designed to assess the frequency of direct and indirect aggression and victimization as well as prosocial/non-aggressive behaviors.

The Adult Scale of Hostility and Aggression: Reactive/Proactive is a 58-item scale used to assess a caregiver's reports of verbal aggression, physical aggression, hostile affect, covert aggression, and bullying in adults with developmental disabilities.

The Impulsive/Premeditated Aggression Scale is a 30-item questionnaire used to assess aggression, specifically premeditated aggression (i.e. instrumental aggression) and impulsive aggression (i.e. reactive aggression), that occurred within the past six months.

The Staff Observation Aggression Scale (SOAS) is used to assess aggressive behavior in patients (particularly involuntarily admitted patients) in inpatient mental illness programs. The SOAS is used to assess (1) factors that provoked aggressive behavior, (2) specific aggressive behavior, (3) the target of the aggression, (4) consequences for the target of the aggression, and (5) measures taken to stop the aggressive behavior. Although meant to capture a range of aggressive behavior, the SOAS tends to be used for reporting moderate to severe aggressive behaviors.

The Reactive-Proactive Questionnaire (Raine et al., 2006) is a 23-item survey used to assess proactive and reactive aggression. This scale can be used with children with a reading age of 8 years.

The Achenbach also contains a subscale to assess self-reported aggressive behavior in children (Child Behavior Checklist) and youth (Youth Self-Report) as well as teacher-reported aggression in children (Teacher's Report Form).

Denson, Pedersen, and Miller (2006) examined trait differences in displaced aggression through the 31-item Displaced Aggression Questionnaire. This questionnaire measures affect, behavioral, and cognitive dimensions of displaced aggression, namely angry rumination, behavioral displaced aggression, and revenge planning (respectively).

Behavioral Assessments of State Aggression

There are several behavioral paradigms used to assess indirect aggression. For example, in the jelly bean task (e.g. Lee et al., 2012), participants are presented with a variety of good-tasting jelly beans (e.g. cherry, chocolate, pie) and bad-tasting jelly beans (e.g. vomit, earwax, dirt) in a clearly labeled container. Participants are told they are working with another participant and that their task is to select jelly beans for another participant to taste test. Indirect aggression is assessed by the number of total good-tasting (i.e. no aggression) and bad-tasting (i.e. aggression) jelly beans selected (including the ratio of good-tasting to bad-tasting jelly beans).

Similarly, in the drink task, participants select one of six substances (i.e. sugar, apple juice, lemon juice, salt, vinegar, and hot sauce) for a supposed other participant to taste test; they are told that the supposed participant rank-ordered the substances from most preferred (sugar) to least preferred (hot sauce). Indirect aggression is assessed by which substance is selected (hot sauce is most indirectly aggressive; sugar is not aggressive) and amount of substance given. In another variation of this task, commonly referred to as the hot sauce task, participants learn that the supposed other participant dislikes hot sauce; aggression is assessed by the amount of hot sauce participants decide to administer.

Overt aggression can also be assessed through behavioral paradigms. In a classic paradigm (Bushman & Baumeister, 1998), participants are asked to write an essay and are told their essay will be exchanged with another participant's essay for feedback. In actuality, participants are randomly assigned to receive positive feedback (e.g. no suggestions; great essay!) or negative feedback (e.g. one of the worst essays I've ever read). After receiving this

feedback, participants engage in another competition task with the confederate and have the opportunity to deliver various degrees of white noise. Aggression is assessed by the degree of severity/aversiveness of the white noise. This paradigm can also be adjusted to assess indirect aggression by having the participant work with a third participant or confederate after receiving negative feedback from the initial confederate. Similarly, displaced aggression can be assessed by providing participants opportunities to aggress against a third, uninvolved person by thwarting their ability to earn money (e.g. Leander & Chartrand, 2017) or providing more challenging problems for the third person (e.g. Saleem, Anderson, & Bartlett, 2015).

The Point Subtraction Aggression Paradigm (PSAP) is also used to measure aggressive behaviors. Participants are paired with a supposed other participant and are given several behavioral response options (respond to earn money, protect money, or deduct money from the supposed other participant). Deducting money from the supposed other participant is considered an aggressive act. To provoke participants, the computer (i.e. the supposed other participant) simultaneously deducts the participant's money regardless of participants' choices. Slightly different versions of the PSAP can be administered in order to examine instrumental and reactive aggression.

Conclusions

Although aggression is defined in terms of behavioral acts designed to harm, injure, or inflict pain on an individual, some assessments also include several related features including measures of affect (primarily anger or frustration) and cognition (particularly hostility). In addition to observing and recording aggressive behaviors, self- and other-reports and behavioral assessments are commonly used to measure aggression. Even with these tools, it is important to note that aggression is a multifaceted construct that may be difficult to assess using only one measure. Additionally, the highlighted assessments, although useful to quantify how aggressive an individual is, do not directly capture *why* the aggressive behavior occurred. Regardless of these shortcomings, the number of assessments created to conceptualize aggression suggests the broad impact this topic has had on the research literature. The current entry, in addition to providing frequently used assessments of aggression, also highlights the essentiality of assessing both the way aggression is evidenced as well as the context in which it occurs.

See Also

Anger and Hostility, Assessment of
Human Genome Project and Personality
Jealousy, Assessment of
Positive and Negative Affective States, Assessment of

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Anger and Hostility, Assessment of

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Anger and hostility are multifaceted constructs composed of affective and cognitive components. Despite periodically being used interchangeably due to the overlap in affective and cognitive components, anger and hostility differ in the emphasis given to each component. Anger is typically conceptualized as an emotion (i.e. affect) whereas hostility is generally considered as an attitude (i.e. cognition) often resulting from anger. In this entry we define anger and hostility and present tools used to assess these constructs.

Defining Anger and Hostility

Anger, one of the basic human emotions, is typically defined as a subjective negative affective reaction experienced when a person perceives a malevolent situation or interaction. The intensity of the subjective emotional response varies from mild (e.g. annoyance) to intense (e.g. rage) affect. Anger is also characterized by physiological responses such as changes in sympathetic arousal (e.g. increased heart rate, tensed muscles), hormone levels (e.g. increased testosterone), behavioral responses (e.g. facial expressions), and cognitive factors (e.g. irrational beliefs).

Anger is classified as an approach emotion that propels people to engage with or move toward a situation (Harmon-Jones, 2003). Anger can be a beneficial emotion that enables people to establish boundaries or escape a dangerous situation (Videbeck, 2006). Despite being classified as an approach emotion, expressions of anger can be inhibition oriented or approach oriented. Individuals with an inhibition orientation withdraw and seclude themselves whereas people with an approach orientation engage further to express anger outwardly (Bridewell & Chang, 1997). Although behavioral responses are widely considered an indication of anger, such responses are typically labeled as aggression rather than anger.

Hostility is conceptualized as a trait with emphasis placed on cognitive components. Hostility is regarded as an attitude marked by a strong negative evaluation of the target (e.g. being dishonest, mean). Hostility is marked by cynicism and mistrust of people and strong negative affect for the target. Hostile people often perceive others as sources of transgressions and devalue people's motives for their actions. People who are high on hostility attempt to force the world and people to conform to their perceptions of "'what ought to be." Hostility is often marked by physical (e.g. hitting, harming oneself or others) and non-physical (e.g. verbal comments, blackmail) behavioral responses. Hostility is a robustly accepted antecedent of aggressive and vindictive behavior (as opposed to being defined by aggressive behavior).

Although often correlated, anger and hostility are conceptually different. Anger is an emotional reaction to a negative, provocative situation whereas hostility is a cognitive trait characterized by negative evaluations and affect toward others. Despite the emphasis of anger being affective and hostility being cognitive, both anger and hostility are multidimensional and include internal (e.g. affective, cognitive, physiological) and external (behavioral) components. Anger, like other emotional responses, tends to be short in duration whereas hostility tends to be longer in duration. Both anger and hostility can range in intensity from mild to extreme. Given the multidimensional nature of anger and hostility, there are a variety of assessments designed to measure self-reports of affect and cognition, physiological changes, and behavioral responses. Below we provide examples of commonly used assessments; our examples are not an exhaustive collection of the numerous ways of assessing anger and hostility.

Assessment of Anger

Although we present anger assessments individually, multiple modalities of anger measurement are often used concurrently. In particular, due to the subjective affective nature of anger self-report, assessments are typically collected in conjunction with behavioral and physiological assessments in order to be able to interpret the latter.

Self-Reports

The Behavioral Inhibition System (BIS)/Behavioral Activation System (BAS) Scales were derived from theories postulating the respective two motivational systems underlying human behaviors. The scales contain 24 items rated on a 4-point Likert scale and are used to understand the motivational systems of emotions such as anger. Since anger is typically considered an approach emotion, the three BAS subscales (i.e. Drive, Fun Seeking, and Reward Responsiveness) are typically examined. The BIS/BAS scale is commonly used during experimental manipulations of anger in an attempt to interpret physiological and behavioral responses to anger.

The 60-item Novaco Anger Scale (NAS) is used to assess people's experience of anger by measuring (1) cognitive components (e.g. anger justification, rumination, hostile attitude, suspicion), (2) arousal (e.g. anger intensity, duration, somatic tension, irritability),

(3) behavior (e.g. impulsive reaction, verbal aggression, indirect expression), and (4) anger regulation (e.g. ability to regulate thoughts, self-calm, and engage in constructive behavior). The 25-item NPI is used to determine the type of situations that elicit anger including situations in which there is disrespectful treatment, unfairness, frustration, annoying traits of others, and irritations.

The Multidimensional Anger Inventory (MAI) is used to assess anger arousal (e.g. frequency, duration, magnitude), anger eliciting situations, hostile outlook, and anger expression (i.e. anger-in and anger-out). Despite the focus on anger, this assessment uses anger and hostility interchangeably. Similarly, the State-Trait Anger Expression Inventory (STAXI) is a 44-item measure of experience and expression of anger that is a compilation of the State-Trait Anger Scale (STAS) and the Anger Expression Scales (AX). The STAXI is used to assess intensity of state anger, frequency of trait anger, expression of anger, anger suppression, and anger regulation.

Behavioral Assessments

A number of paradigms are used to induce anger in participants (i.e. experimental manipulations) in order to assess behavioral responses. One paradigm used to induce anger involves participants playing a rigged board game with a confederate who always cheats to win. One behavioral response commonly examined is facial expressions. Using the facial action coding system (FACS), anger typically manifests as lowered eyebrows, wide open eyes, parted lips that expose teeth, and stretched lip corners; more recent assessments have examined micro-expressions of anger. Other non-verbal responses commonly examined include aggressive behaviors such as slamming objects (Capaldi & Clark, 1998). In addition, behavioral assessments of anger can include common verbal behaviors (e.g. louder voice, change in tone). Researchers also measure antecedent behavioral cues of anger such as social withdrawal behaviors or displays of frustration (e.g. crying, teeth grinding, fist clenching).

Physiological Assessments

Although it is widely accepted that physiological changes are not unique to anger, it is still common to assess physiological responses. Cardiovascular responses (i.e. cardiac output, ventricular contractility, total peripheral resistance) are typically assessed through EKG screening or blood pressure. In addition, galvanic skin response (i.e. skin conductance) is also commonly assessed. Although physiological measurements such as blood pressure and heart contractility are commonly used, there is debate about the reliability of these measures because many variables affect these measures (e.g. Type A personality, amount of exercise, stress). Researchers have also examined hormone levels (e.g. testosterone), neurotransmitters, and serum lipids (e.g. serum cholesterol, low-density lipoproteins). Associations between brain activation and anger have been widely studied through EEG, fMRI, and PET (Phan et al., 2002). In line with BIS/BAS motivational systems, participants who are angry exhibit higher left relative to right frontal cortical activity when angry.

Assessment of Hostility

Similar to anger, the nature of hostility requires researchers and clinicians to measure multiple dimensions. Most common are behavioral assessments, physiological assessments, and self-report hostility surveys.

Self-Reports

The Buss-Durkee Hostility Inventory (BDHI) is a 66-item true-false scale composed of seven subscales: assault, indirect hostility, verbal hostility, irritability, negativism, resentment, and suspicion. However, subsequent research has indicated that these subscales could be reduced to aggression (assault, indirect aggression, irritability, verbal aggression) and hostility (resentment, suspicion) or to overt hostility (assault, verbal aggression) and covert hostility (resentment, suspicion). The 29-item Buss-Perry Aggression Questionnaire (BPAQ) was developed to address the psychometric and theoretical shortcomings of the BDHI and consists of four subscales including hostility, anger, verbal aggression, and physical aggression.

The Cook-Medley Hostility Inventory is a 50-item self-report scale used to assess hostility and character traits among teachers who did not get along with their students; it is now commonly used when assessing associations between hostility and cardiovascular health. Some researchers have identified six subscales including hostile attractions, cynicism, hostile affect, aggressive responding, social avoidance, and others; other researchers have identified two factors (cynicism, paranoid alienation) or four factors (cynicism, hypersensitivity, aggressive responding, social avoidance) (Smith, Sanders, & Alexander, 1990). Despite the inconsistency in number of factors, this scale continues to be widely used.

Behavioral Assessments

Because hostility is often characterized by an externalized reaction to internal stimuli or emotion, behavioral assessments are often used to measure several subclasses of hostility such as assault (i.e. physical violence against others), indirect hostility (i.e. gossiping, temper tantrums), irritability (i.e. quick temper, grouchiness, rudeness), resentment (i.e. jealousy, hatred), suspicion (i.e. distrust, planning harm), and verbal hostility (i.e. threatening, cursing). Paradigms can be used to provoke hostile reactions that are classified as one or more of these subclasses of hostility; the magnitude and duration of the particular reaction are used to determine the participant's hostility level. Another popular way to measure hostility is through interview based assessments popularized by the Western Collaborative Group Study (WCGS); trained interviewers make judgments of hostility based on participants' responses during a standard interview.

Physiological Assessments

Although it is difficult to distinguish physiological changes due to hostility from similar affective states such as anxiety or anger, researchers have attempted to elicit a hostile

reaction via provoking situations and then measuring the physiological changes that occur. Among the most common physiological changes examined are heart rate and blood pressure. Many researchers argue that hostility predicts a higher magnitude and longer duration of elevated blood pressure and heart rate (Frederickson et al., 2000). However, as mentioned above, it is difficult to determine whether these physiological changes are due to changes of hostile ideations or other factors known to impact these measures (e.g. stress, exercise).

Conclusions

Although related constructs, anger and hostility are conceptually distinct. Anger is an emotional reaction to situational stimuli that is generally short in duration whereas hostility is a trait characterized by a strong negative evaluation of target. Both anger and hostility are antecedents for aggressive and violence behavior. Although assessments of anger and hostility that measure each of the multiple dimensions (e.g. affective, cognitions, behavioral responses, physiological responses) of these constructs exist, subjective self-reports are vital given the subjective nature of anger and hostility. Thus, even when using physiological or behavioral assessments of anger and hostility, it is important to include self-reports in order to capture the subjective nature of the constructs.

See Also

Aggressiveness, Assessment of
Antisocial Behavior, Assessment of
Jealousy, Assessment of
Positive and Negative Affective States, Assessment of

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Anxiety, Assessment of

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Anxiety is conceptualized as including both physiological arousal and psychological worry (see Anxiety for a more thorough discussion on conceptualizations of anxiety). Reliable and valid assessment of anxiety is essential in both clinical and research settings. Numerous measures have therefore been created to assess anxiety. As anxiety can be conceptualized in a number of ways, and is measured in a number of different populations, a variety of measures are needed in order to assess anxiety in these diverse settings. Some measures of anxiety are designed to be used in clinical (psychology or psychiatric) populations, whereas others are designed more for hospital (medical) populations, or general (including student) populations. In addition, measures differ on whether they measure anxiety as a state (temporary) or a trait (long lasting). Measures also differ on how they operationally define anxiety, that is, what specific symptoms or characteristics of anxiety they measure. For example, some focus on more physiological components of anxiety, whereas other measures avoid physiological components. In addition, some measures focus exclusively on anxiety, while others measure anxiety and depression, or anxiety, depression (see Depression for more on assessment of depression), and stress (see Individual Differences in Coping with Stress for more on individual differences in coping with stress). Several commonly used anxiety measures are described below. Included with the description of each measure are a discussion of the population(s) for which the measure may be most appropriate and a discussion of some of the strengths and weaknesses of each.

Beck Anxiety Inventory

The Beck Anxiety Inventory (BAI; Beck, Epstein, Brown, & Steer, 1988) is a self-report measure designed to measure anxiety in clinical populations. The BAI has 21 items. Respondents rate how much they are affected by each symptom of anxiety on a 4-point Likert-type scale from 0 (*Not at all*) to 3 (*Severely – I could barely stand it*). The resulting total score can range from 0 to 63. Examples of items on the BAI include: "Numbness or

tingling," "Feeling hot," "Wobbliness in legs," "Unable to relax," and "Fear of the worst happening." The BAI has strong internal consistency and test-retest reliability. A particular strength of the measure is that it was developed to reliably discriminate and avoid overlap between anxiety and depression. Indeed, it has been found to reliably discriminate between those diagnosed with anxiety disorders (such as panic disorder and generalized anxiety disorder) and those diagnosed with depressive disorders (such as major depressive disorder and dysthymic disorder). In addition, it was designed for use with psychological or psychiatric populations, unlike other measures that were developed with student samples. However, a limitation is that most of the anxiety symptoms measured by the BAI are consistent with panic attack symptoms, but other symptoms of anxiety, such as worry or muscle tension are not measured.

Hamilton Anxiety Scale

The Hamilton Anxiety Scale (HAM-A; Hamilton, 1959) is a clinician-report measure of anxiety designed to measure the level of anxiety in individuals diagnosed with an anxiety disorder. The clinician rates the individual on 14 subscales: Anxious Mood (worries, fearful anticipation), Tension (fatigability, inability to relax), Fears (of specific situations), Insomnia (difficulty falling asleep, unsatisfying sleep), Intellectual (difficulty with concentration and memory), Depressed Mood (loss of interest, lack of pleasure), General Somatic Muscular Symptoms (pains and aches, stiffness), General Somatic Sensory Symptoms (tinnitus, blurring of vision), Cardiovascular Symptoms (tachycardia, palpitations), Respiratory Symptoms (pressure or constriction in chest, choking feelings), Gastrointestinal Symptoms (difficult in swallowing, vomiting, looseness of bowels), Genitourinary Symptoms (frequency or urgency of urination or sexual symptoms), Autonomic Symptoms (dry mouth, flushing, tendency to sweat), and Behavior at Interview (fidgeting, restlessness or packing, tremor of hands). Each scale is rated on a 5-point Likert-type scale from 0 (*None*) to 4 (*Severe*). The symptoms can be grouped into two subscales: psychic anxiety (tension, fears, insomnia, anxiety, intellectual, depression, and behavior at interview) and somatic anxiety (gastrointestinal, genitourinary, respiratory, cardiovascular, general somatic muscular and sensory symptoms, and autonomic symptoms). Interrater reliability has been found to be adequate. A strength of the HAM-A is that it is a clinician rating scale, meaning that the clinician completes the measure after interviewing the patient, whereas most measures of anxiety are self-report. However, the measure overlaps with features of depression, making the HAM-A a less specific measure of anxiety.

Depression Anxiety Stress Scales

The Depression Anxiety Stress Scales (DASS; Lovibond & Lovibond, 1995) are self-report measures of symptoms of depression, anxiety, and stress appropriate for use in clinical and non-clinical populations. The full DASS consists of 42 items, with 14 items on each subscale. There is also a 21-item version with seven items on each subscale. Respondents rate the degree to which each item applies to them on a 4-point Likert-type scale ranging from 0 (*Did not apply to me at all*) to 3 (*Applied to me very much, or most of the time*). While the Anxiety subscale measures autonomic arousal, skeletal musculature effects, situational

anxiety, and subjective experience of anxious affect, the Stress scale measures chronic non-specific tension and arousal. The anxiety subscale measures symptoms more unique to anxiety, such as physiological hyperarousal, while the stress subscale measures symptoms common to both anxiety and depression, such as tension and irritability. Items on the Anxiety subscale include "I was aware of the action of my heart in the absence of physical exertion (e.g. sense of heart rate increase, heart missing a beat)," "I experienced trembling (e.g. in the hands)," "I was worried about situations in which I might panic and make a fool of myself," "I felt I was close to panic," and "I was scared without any good reason." Items on the Stress subscale include "I found it hard to wind down," "I felt that I was using a lot of nervous energy," "I found myself getting agitated," "I tended to over-react to situations," and "I was intolerant of anything that kept me from getting on with what I was doing." Internal consistency has been found to be strong. A strength of the DASS is that it was developed in particular to discriminate between the constructs. As a result, there is less overlap between the subscales than there is in other measures.

Hospital Anxiety and Depression Scale

The Hospital Anxiety and Depression Scale (HADS; Zigmond & Snaith, 1983) measures anxiety and depression in non-psychiatric medical populations. The 14-item HADS has seven items that assess anxiety and seven items that assess depression. The measure was normed using medical patients and is particularly well-suited for use with such a population. The measure was designed to be brief, so it could be completed quickly in a medical setting. A common concern with measuring psychological symptoms in medical patients is that the scores on the psychological measures are often affected by physical illness symptoms. The HADS was therefore developed without items that would be related to both psychological disorders and physical illness, like dizziness and headaches. As a result, the HADS measures the psychic symptoms of anxiety and depression rather than the somatic symptoms. Respondents rate each item on a 4-point Likert-type scale ranging from 0 to 3, with a higher score indicating more of the symptom described. A score higher than 10 on either scale indicates a definite case, a score between 8 and 10 indicates a doubtful case, and scores below 8 on either scale are considered to be non-cases. Items on the Anxiety subscale include "I feel tense or wound up," "I get a sort of frightened feeling as if something awful is about to happen," "Worrying thoughts go through my mind," "I get sudden feelings of panic," and "I can sit at ease and feel relaxed" with the last item being reverse coded. Internal consistency was found to be strong. A strength of this measure is that it does not include somatic symptoms which prevents an overlap between medical and psychological symptoms. Further, the anxiety and depression subscales were developed to maximize their distinction, so there would be less overlap between the subscales than there may be in other measures.

State-Trait Anxiety Inventory

The State-Trait Anxiety Inventory (STAI; Spielberger, Gorsuch, Lushene, Vagg, & Jacobs, 1983) measures anxiety as both a temporary state and a longer term trait. Trait anxiety is conceptualized as a relatively stable individual difference in susceptibility to anxiety.

A person high in trait anxiety would be more likely to perceive a situation as dangerous or threatening, and would respond to such situations with greater evaluation and intensity in their more temporary state anxiety. Therefore, a person with high trait anxiety would have more frequent elevations in state anxiety. However, whether someone with high trait anxiety experiences high state anxiety at any given time will depend on how dangerous or threatening they perceive the specific situation, which will be affected by the person's past experiences. The STAI has 40 items, 20 each on the Trait and State scales. Respondents rate their anxiety on a 4-point Likert-type scale. On the Trait Anxiety Scale, 1 = *Almost Never* and 4 = *Almost Always*. On the State Anxiety Scale, 1 = *Not at All* and 4 = *Very Much So*. Some items on both scales are reverse coded. The Trait Anxiety Scale asks respondents to indicate how they "*generally* feel," and includes items such as "I feel nervous and restless," "I feel like a failure," "I feel that difficulties are piling up so that I cannot overcome them," "I feel satisfied with myself," and "I feel pleasant," with the last two items being reverse coded. The State Anxiety Scale asks respondents to indicate how they "feel *right* now, that is, *at this moment,*" and includes such items as "I am tense," "I am presently worrying over possible misfortunes," "I feel frightened," "I feel relaxed," and "I feel calm," with the last two items being reverse coded. Test-retest reliability was found to be strong for the Trait Anxiety Scale. Test-retest reliability was found to be lower for the State Anxiety Scale, but that is consistent with the conceptualization of state anxiety being a temporary state. Internal consistency was found to be strong from both scales. The STAI is appropriate for use in both clinical and non-clinical populations. The STAI is unique in that it measures both trait anxiety consistent with personality and individual differences as well as state anxiety consistent with temporary responses to current events.

See Also

Anxiety
Depression
Individual Differences in Coping with Stress
Positive and Negative Affective States, Assessment of
Subjective Well-Being, Assessment of
Social Anxiety and Social Anxiety Disorder
Test Anxiety

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Jealousy, Assessment of

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Jealousy has been defined as a response – cognitive, emotional, or behavioral in nature – to a threat to one's relationship or self-esteem by a potential rival, which motivates behavior aimed at countering the threat (White, 1981). Specifically, people should be most jealous of those rivals who are a significant threat to their self-esteem, as well as a threat to the loss of their relationships. The outcomes of jealousy can be quite varied, ranging from potentially negative (e.g. conflict, dating violence, relational dissatisfaction) to positive (e.g. increased relational satisfaction and commitment). Additionally, jealousy has been shown to be related to various personality traits, such as neuroticism, extraversion, anxiety, rigidity, and hostility.

Theories of Jealousy

Evolutionary theorists hypothesize that men and women differ in what triggers their jealousy. Buss, Larsen, Westen, and Semmelroth (1992) suggest that jealousy exists mainly due to its relational and mating benefits. Further, they propose that when forced to choose between whether a partner's sexual versus emotional infidelity would be more distressing, men are more likely to be jealous of sexual infidelities, due to the potential for paternity uncertainty. Women, on the other hand, are more likely to be jealous of emotional infidelities, given that a woman should be more concerned with a partner's commitment and investment to support her children and emotional infidelity may signify a man's lack of relational commitment and the possible diverting of his investments to the children of a rival. Empirical tests of sex differences found by the evolutionary theory have typically used a forced-choice response format in which participants had to identify which of two types of infidelity scenarios would cause them the most distress (emotional versus sexual). Buss et al. (1992) also found similar results using physiological distress measures (e.g. electrodermal response, heart rates). However, critics for this type of measure argue that psychophysiological measures do not convincingly measure jealousy.

Additional research that potentially supports evolutionary sex differences in jealousy was conducted by Sagarin, Becker, Guadagno, Wilkinson, and Nicastle (2012) when they demonstrated that sex differences in jealousy for heterosexual women and men tended to disappear among lesbians and gay men, as well as among heterosexual women and men when they considered same-sex infidelities. Also, lesbians and gay men showed no sex differences, regardless of whether the infidelity was opposite-sex or same-sex. Sagarin et al. (2012) argue that this pattern of findings supports an evolutionary reproductive threat-based model of jealousy in that the sexes only differ when reproductive outcomes are at risk.

Many researchers have challenged Buss et al.'s theory. For instance, DeSteno and Salovey (1996) found no sex difference when participants were asked to rate their jealousy on a Likert-type scale in response to sexual and emotional infidelities. Sagarin, Becker, Guadagno, Nicastle, and Millevoi (2003) presented similar emotional and sexual infidelity scenarios and, using continuous 10-point scales, asked participants to indicate their feelings of jealousy. They found that women reported more intense jealousy for both types of infidelity compared to men, with a bigger difference for emotional infidelity. DeSteno, Bartlett, Braverman, and Salovey (2002) argued that using a forced-choice format to measure jealousy is problematic in that participants have to make a distinct choice between the different hypothetical infidelity scenarios, which often results in misleading differences between the sexes. When jealousy is assessed using non-forced choice, continuous scales, sex differences typically do not emerge, and when these same individuals then complete a forced-choice scale, the sex difference appears again (DeSteno et al., 2002). Further evidence contrary to evolutionary sex differences was also discussed by Harris (2003) who, after a review of the research, contends that her meta-analytic findings do not support a significant sex difference in response to emotional versus sexual infidelity. To further complicate matters, a meta-analysis by Sagarin, Martin, Coutinho, Edlund, Patel, Skowronski, and Zengel (2012) examining numerous independent samples using continuous measures revealed that significant sex differences in jealousy may not be an artifact of the forced-choice format.

Other researchers have suggested that the experience of jealousy is based on socially-learned expectations, in that people may believe that one event implies the existence of another event (DeSteno & Salovey, 1996). That is, although both types of infidelity should result in jealousy, the type that is most distressing to an individual would be the one that implies the occurrence of the other or, in other words, a "double-shot" of infidelity. DeSteno and Salovey (1996) proposed that the double-shot hypothesis explains sex differences in terms of the perceptions that infidelity of one type likely predicts that the other type of infidelity is also occurring (e.g. men may think that sexual infidelity is more distressing because they believe that if a woman has sex with another man, then she probably also is emotionally involved with him as well, and vice versa for women). Evidence has been mixed in terms of support for the double-shot hypothesis. Further investigation into more social explanations for the sex difference in jealousy was also conducted by DeSteno et al. (2002) who used a cognitive load manipulation which prevented the participants from reflecting on the types of infidelity. Under cognitive load, men's responses maintained greater distress to sexual infidelity. However, women's responses also shifted toward a stronger jealousy for sexual infidelity. The researchers contend that this finding potentially indicates that the sex difference in forced-choice studies may be caused by a self-presentation strategy by women.

Measures of Jealousy

Forced-choice format scales typically have participants choose which of two types of infidelity scenarios (emotional versus sexual) would cause them the most jealousy. This forced-choice method was first designed by Buss et al. (1992) and has since been used in numerous studies.

Non-forced choice response formats typically use continuous, Likert-type scales to assess jealousy experiences. (Checklist formats have also been less commonly used.) There are many examples of these scale types.

- Bringle, Roach, Andler, and Evenbeck's (1979) Self-Report Jealousy Scale (SRJS) is a unidimensional scale intended to measure dispositional characteristics of jealousy across all kinds of past relationships.
- Mathes and Severa's (1981) Interpersonal Jealousy Scale (IJS) is a 28-item scale measuring individual differences in jealousy.
- White's (1981) Relationship Jealousy Scale (RJS) is a 6-item, unidimensional scale that measures romantic jealousy.
- White's (1981) Chronic Jealousy Scale (CJS) is a 6-item, unidimensional scale that measures frequency and intensity of jealousy across previous and current relationships, romantic and non-romantic.
- Thissen, Steinberg, Pysczynski, and Greenberg's (1983) Romantic Jealousy Assessment (RJA) is made up of six hypothetical scenarios depicting situations which might lead a person to feel jealous.
- Pfeiffer and Wong's (1989) 24-item Multidimensional Jealousy Scale (MJS) is composed of three jealousy components: cognitive, emotional, and behavioral.
- Geary, Rumsey, Bow-Thomas, and Hoard (1995) had study participants imagine their own partners engaging in jealousy provoking behaviors and then how they would react.
- Guerrero, Andersen, Jorgensen, Spitzberg, and Eloy's (1995) Communicative Responses to Jealousy Scale (CRJS) is a 70-item scale measuring various communicative responses to jealousy.

Physiological measures of jealousy responses, such as electrodermal activity and pulse rate, have also been used. For instance, Buss et al. (1992) used measures of autonomic nervous system activity to assess jealousy reactions. They recorded physiological activation as people contemplated being victims of different kinds of infidelity. However, physiological measures have proven to be somewhat controversial.

Jealousy and Attachment

In his classic work, John Bowlby considered how childhood attachments to primary caretakers may serve as a working model for later adult relationships. Models of attachment are often composed of two basic dimensions, anxiety and avoidance (Brennan, Clark, & Shaver, 1998). Simpson and Rholes (1994) proposed that jealousy can also elicit these working models in romantic relationships. For instance, various researchers have proposed that people who are high in either avoidance or anxiety may experience increased jealousy.

Jealousy and Envy

The concepts of jealousy and envy are frequently compared in the research literature. Traditionally, envy occurs when a person lacks something of desire that another person possesses, or wishes that the other person did not have. Some researchers make a distinction between envy and jealousy, while others have failed to find qualitative differences. For instance, Salovey and Rodin (1986) concluded that the differences between jealousy and envy were more quantitative than qualitative, in that they produced similar affective experiences, but that jealousy was more intense. However, Parrott and Smith (1993) described qualitative differences between the two, in that envy was characterized by feelings of inferiority, longing, disapproval, and unsanctioned ill will, and jealousy was composed of fear of loss or rejection, anger, anxiety, and distrust.

Cross-cultural Comparisons

Various theorists have speculated that jealousy is more pronounced in cultures with an increased emphasis on the importance of marriage, for those cultures that approve of sex only within marriage, and for those cultures that highly value personal property (Harris, 2004). Evolutionary theorists contend that the evolutionary theory can account for jealousy across cultures, in that jealousy is adaptive and therefore universal. The evolutionary theory's pattern of findings has received cross-cultural support in samples from around the world, including China, the Netherlands, Germany, Korea, and Japan. Harris (2004) notes, however, that in comparison to samples from the United States, men from European or Asian countries are less likely to choose sexual infidelity as worse.

Cross-cultural research on sex differences in jealousy by Buunk and Hupka (1987) asked participants from seven nations (Hungary, Ireland, Mexico, the Netherlands, the Soviet Union, the United States, and Yugoslavia) how much they agreed with six jealousy-related statements regarding their partners. They found that men and women were similar for most of their responses, differing only on two of the six statements. Using both American and Chinese participants, Geary, Rumsey, Bow-Thomas, and Hoard (1995) found that in response to both emotional and sexual infidelity, American women reported more intense jealousy relative to American men, with a larger difference for emotional infidelity. Results were less consistent, however, for the Chinese sample, showing a small tendency for Chinese men, relative to Chinese women, to report more intense jealousy in response to sexual infidelity.

See Also

David Buss
Evolutionary Theory and Personality Correlates of Mate Selection
Evolutionary Theory of Personality
Gender Differences/Evolutionary
Meta-analysis in Personality Research

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Love and Attraction, Assessment of

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What Attracts People to Others

Attraction involves an individual's positive perception and evaluation of another person. As with any attitude, attraction has affective, behavioral, and cognitive components. That is, a person has positive feelings, behaviors toward, and thoughts about the person to whom they are attracted. The four major factors that influence whether a person is attracted to another are proximity, reciprocal liking, similarity, and physical attractiveness.

Proximity refers to the literal physical closeness of one person to another. That is, people are more likely to be attracted to those who live closer to them – in the same city or next door in an apartment complex. Many people can relate to the difficulty of maintaining a long-distance relationship, but not only are people less likely to maintain a pre-existing relationship in which a person does not live close by, so too are they less likely to start one. The reason this proximity effect works is because of a phenomenon known as the "mere exposure effect." The more often we encounter an object or a person, the more we like it. When people are physically closer to us, we will see them more frequently and thus we will like them more. We like others who we encounter more often.

Reciprocal liking refers to the intuitive notion that if a person is attracted to us, we will find them attractive. This effect works both on a general scale – people who tend to like others more in general are also liked more in general – as well as on a dyadic scale – people are more likely to like a particular person who likes them. We like others who like us.

Similarity refers to the fact that "birds of a feather flock together," rather than "opposites attract." The greatest predictor of attraction is similarity. These similarities can be in people's attitudes, beliefs, hobbies, and even their physical appearance or name. The phenomenon that people tend to become attracted to and start relationships with others who they are more similar to is known as assortative mating. The phenomenon shows that the most common characteristics for people to be similar to their spouses on include age, religiousness, and political orientation. There is a moderate similarity in education,

verbal intelligence, and values. Finally, there is the smallest amount of similarity in reasoning skills, personality, emotional experience, expression, and attachment style. We like others who are like us.

Finally, physical attractiveness is a robust predictor of whether or not we are attracted to someone. The first aspect about a person that we perceive is their physical attractiveness and it has a strong impact on our attraction toward them. The more physically attractive a person is, the more attracted others tend to be to them and the more likely they desire to be in a relationship with that person. People end up in relationships with someone who is comparable in attractiveness to themselves; they are unable to attract the most alluring targets unless they are equally as alluring. Although people may have idiosyncratic qualities about others that they find attractive (e.g. glasses versus no glasses, long hair versus short), there is widespread agreement about what the most physically attractive qualities are. Both men and women find others with a large smile, high set eyebrows, full lips, facial symmetry, and a confident posture as more attractive. Men specifically find women most attractive when they have prominent cheekbones, waist-to-hip ratios of approximately .70, and are shorter than them. Women specifically find men most attractive when they have a broad jaw, broad shoulders, and are taller than them. We like others who are physically attractive.

Measurements of Attractiveness

There are several methodologies used frequently by researchers to determine whether a person is attracted to someone else and the degree of their attractiveness. One commonly used paradigm involves non-conscious mimicry, that is the amount to which people unconsciously copy others' non-verbal behavior. People tend to mimic the behavior of others when they want others to like them and, similarly, people tend to like others better who mimic their behavior. Importantly, this effect is not one that people are consciously aware of, thus it is not due to self-presentation.

A relatively more novel method to measure attraction involves a recently popular procedure in the dating world: speed dating. In a typical speed dating event, women sit at small tables or in chairs around a room and men will rotate to meet all of the women exactly once. Each speed date lasts only a few minutes so each pair can briefly get to know each other. At the end of the session, each person indicates whether or not they would want to see the other person again. The organizers of the speed dating event will contact the pairs who "match" (who both say they would like to see the other person again). While speed dating originated as a dating event to allow single people to meet other singles, it is now also used in research to study attraction. Researchers manipulate or measure variables, like which gender is rotating and which is sitting or a person's self-confidence, and measure how that affects their attraction (i.e. who they said "yes" to).

Measurements of Love

For centuries people have been debating on the nature of love, how we should define it, and what it really means to love someone. Psychologists, also, have been debating on these same topics. The most popular model of love, taught in almost every introductory psychology

textbook, distinguishes three components of love: intimacy, or feelings of closeness to another person, commitment, or the decision to remain with another person over time, and passion, or sexual attraction for another person. One person's love for another can be measured using this model by determining how much of each type of love a person feels for someone. Two partners' models can even be compared to determine in what areas there might be a mismatch.

Love can also be measured biologically. People who are in love release more of the neurotransmitters oxytocin and dopamine. Oxytocin is associated with bonding, such as that which occurs between a mother and child or between two romantic partners. Dopamine is associated with feeling rewards and pleasure of any kind – eating a favorite food, engaging in a favorite activity, or spending time with a loved one. Love also has a specific pattern of neurological activation in the brain. Areas of the brain associated with the reward system and areas that contain receptors for oxytocin and dopamine are more activated in people who are experiencing romantic love. Additionally, areas of the brain associated with feeling negative emotions and with making social judgments are less activated in people who are experiencing romantic love. People who are in love are different on a biological and neurological level from those who are not.

There are also behavioral measurements of love. Self-expansion, or including attributes of another person into one's own sense of self, is one way that love is measured behaviorally. For example, becoming more artistic after starting a relationship with a person who is really artistic reflects a person self-expanding. The experience of falling in love involves self-expanding by taking on traits of the romantic partner and incorporating them into one's own sense of self. People literally become more like those that they love.

What Affects Love

Beliefs about love are a powerful moderating factor of a variety of indicators of relationship success. Some people believe that they have a "romantic destiny" or "soulmate," that is they feel it is their destiny to be with a specific individual; others believe that relationships are about growth and "working it out," that is they feel a relationship with anyone can be successful provided both parties work at it. These beliefs about love cause people to act differently in their relationships. People who believe in romantic destiny, compared to romantic growth, terminate relationships more quickly if they feel less satisfied initially in their relationship. Belief in romantic destiny is also related to coping strategies reflecting disengagement from one's partner and a lack of engaging in relationship maintenance following a negative relationship event. On the other hand, belief in romantic growth is associated with a more frequent use of maintenance strategies and generally dating a particular person for a longer period of time.

How people love is also strongly affected by their attachment style. Attachment style was first studied in the relationship between an infant and his or her primary caregiver. Infants with a secure attachment style have a positive relationship with their caregiver characterized by trust and positive emotions. Infants with an avoidant attachment style have a cautious relationship with their caregiver characterized by a suppressed desire to be close to them due to a fear of rejection. Finally infants with an anxious attachment style have an uneasy relationship with their caregiver, characterized by extreme distress, especially at the departure of the caregiver. Recently, attachment style has also been studied as an individual difference

variable and in adults in romantic relationships. People's relationship with their primary caregiver during childhood has an impact on their attachment to others, especially their romantic partner, later in life. Adult attachment is also characterized into secure, avoidant, and anxious and resembles the attachment styles of infancy. Securely attached people find it easy to get close to and depend on others. Avoidantly attached people are uncomfortable getting close to and depending on others. Finally, anxiously attached people are worried about being abandoned and find that others are reluctant to get as close to them as they want to be.

See Also

Biochemical Assessment
Evolutionary Theory and Personality Correlates of Mate Selection
Jealousy, Assessment of

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Masculinity and Femininity

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Defining Gender

Gender differs from biological sex. Gender refers to the ideologies and behaviors of masculinity and femininity that individuals can learn to endorse and express, while biological sex refers to the genetic and hormonal markers that distinguish men from women. Biological sex is not an absolute determinant of gender. A biological man, classified at birth as a male, might display both feminine and masculine characteristics.

Theories of Gender Roles

Three prominent theories on the development of gender roles include social cognitive theory, gender schema theory, and social structure theory. Bussey and Bandura's (1999) social cognitive theory suggests that individuals learn gender from a young age through observation and modeling of behaviors from the adults in their lives and societal influences. Individuals enact these roles based on reinforcement from other people's reactions and responses, suggesting that gender is not static.

Bem's (1981a) gender schema theory indicates that gender roles remain stable once formed. Gender roles are schemas that help individuals organize information gained from exposure to behaviors, attitudes, and activities within the surrounding environment. A child might witness gendered appropriate behavior from their parents, teachers, and peers, which forms his/her internal ideas of gender.

Social structure theory, outlined by Risman (2004), suggests that gender roles are created and maintained by the traditional roles that men and women hold in society. Historically, men have provided for the family whereas women have been homemakers. Social structure theory asserts that gender is a result of these structural roles that society determines. Nurturing behavior results from women being placed in care-giving situations and

aggressiveness results from men being placed in the role of bread-winner. What are considered appropriate gender roles are subject to change as gender roles in society evolve.

Traits of Masculinity and Femininity

Based on the different theories of gender, masculine and feminine traits have been identified by Cowan and Warren (1994). The range of masculine behaviors includes independence, autonomy from others, concern with success, domination, lack of emotional expressiveness, and aggressiveness. The range of feminine behaviors includes emotional expressiveness, communion with others, intuition, servileness, nagging, and excessive worrying. The negative or positive connotation of these traits depends upon their social desirability. For example, communion with others is seen as a positive feminine trait as it helps to promote relationship building, while being too emotional may hurt relationship building and is considered a negative feminine trait. Masculine individuals are often driven to succeed, which is considered a positive masculine trait, as it propels the individual ahead in life. Aggressiveness, on the other hand, might be considered a negative masculine trait because it may hinder the ability to form relationships.

Social Desirability Bias

Social desirability bias is a concern with the self-report of gender roles and calls into question the validity of measures assessing these constructs. Many modern scholars theorize that masculinity is a construct which one can lose. Whereas women's femininity is not questioned after puberty, men who wish to be perceived as masculine must continually strive for masculinity. This is learned from a young age as little boys might be teased about "throwing like a girl" or told to "man up" if they are seen crying. In this sense, masculinity is something that must be earned or they risk being seen as feminine. Therefore, in modern gender role studies, men might skew their responses in such a way that they appear more masculine than they actually are. Though studies often provide confidentiality for their participants, this does not completely resolve the issue of social desirability bias.

The Importance of Gender Roles in Therapy

Even with issues in self-report, gender roles are important to assess as they may help inform clinical decisions. Masculinity and femininity have both been linked to negative psychological outcomes in individuals who strongly endorse one or the other. Individuals who identify as being very feminine often report more anxiety and depression (Muris, Meesters, & Knoops, 2005), whereas individuals who identify as being very masculine are more likely to abuse substances (Grief, 2009). Examination of gender roles might help inform both the client and therapist on the most appropriate method of treatment. For example, masculine individuals are usually not encouraged to talk about their feelings and may instead turn to substances as a way of coping with problems. In such an instance, an examination of gender might help the client and therapist better understand the current predicament and the client's resistance to traditional talk therapy.

Though extreme presentations of gender can impact individuals' clinical presentation in a negative way, gender role behaviors can also be beneficial. Some qualities associated with masculinity, such as autonomy, can actually help promote psychological adjustment (Adams & Sherer, 1982). Recognition of positive traits from both gender roles might help clinicians identify and emphasize these traits in their clients.

Assessment of Masculinity and Femininity

Two of the most widely used assessments for measuring masculinity and femininity are the Bem Sex Role Inventory (BSRI; Bem, 1981b) and the Personal Attributes Questionnaire (PAQ; Spence, Helmreich, & Stapp, 1974). The BRSI assesses masculinity and femininity on a continuum in an attempt to also capture the construct of androgyny. Individuals are scored on the degree to which they identify with both masculine and feminine characteristics. Androgynous individuals have scores that reflect both the average masculine and the average feminine individuals. Therefore, androgyny is not the absence of gender, but the balance of masculine and feminine characteristics.

The characteristics that define masculinity and femininity in the BSRI are based on personality traits that define current gender roles and are perceived as socially acceptable for members of each sex. These characteristics are rated on a unipolar 7-pt Likert scale (1 = almost never true to 7 = almost always true). Items on the femininity scale include being affectionate, conscientious, and helpful. Items on the masculinity scale include being self-reliant, independent, and assertive. The BSRI is considered reliable; the femininity scale has a coefficient alpha of .78, while the masculinity scale has a coefficient alpha of .87. The BSRI also has high test-retest reliability (Bem, 1981b).

The PAQ consists of three subscales: masculinity, femininity, and androgyny. The masculinity subscale, also known as the instrumentality subscale, contains personality traits that are typically ascribed to men, such as being independent, active, competitive, confident, and persistent. The femininity subscale, also known as the expressivity subscale, contains personality traits generally ascribed to women, such as being emotional, gentle, helpful to others, aware of others' feelings, and kind. The androgyny scale is not generally utilized in assessment, but contains items that include crying, having feelings hurt, and excitability in a crisis. The PAQ contains 24 items that are measured on a unipolar Likert scale from 1 = not at all to 5 = very to measure the degree to which individuals ascribe to the characteristic in question. The PAQ is considered reliable; the femininity scale has a coefficient alpha of .77, and the masculinity scale has a coefficient alpha of .80 (Helmreich, Spence, & Wilhelm, 1981).

The construct validity of these two questionnaires has been supported through factor analysis. Correlations between the two masculinity scales range from .72 to .84; the femininity scales share correlations ranging from .52 to .71 (Spence, 1991).

A newly developed instrument for assessing gender is the Traditional Masculinity-Femininity Scale (TMF; Kachel, Steffens, & Niedlich, 2016). The TMF specifically measures masculinity and femininity by assessing items regarding physical appearance, gender-related interests, and a self-assessment of attitudes and beliefs. The TMF is considered reliable, with a coefficient alpha of .94.

Comparing Gender Roles with Related Constructs

Masculinity and femininity have also been included in personality assessments. The Minnesota Multiphasic Personality Inventory (MMPI) is a personality test used to assess for psychopathology and other mental health concerns. The MMPI previously contained a clinical subscale, Scale 5, that specifically assessed for levels of masculinity and femininity (i.e. the Mf Masculinity-Femininity scale). The feminine items on this scale have been highly correlated with negative affectivity, anxiety, and depression, while the masculine items on this scale have been highly correlated with substance use and impulsivity. In fact, researchers Martin and Finn (2010) have speculated that this scale actually assesses for the latter, rather than true levels of masculinity or femininity.

The Mf scale has a weak correlation with the new scales for assessing gender on the MMPI-2; these supplementary scales are known as the GM/ Masculine Gender Role and the GF/ Feminine Gender Role scales. The GM scale assesses for the denial of weakness or psychological fears and for interests typically associated with masculinity (e.g. physical labor, science, adventure). The GF scale assesses for sexually repressive and emotional behaviors and for interests typically associated with femininity (e.g. romance, cooking, housework).

The PAQ and BSRI also have correlates with assessments measuring personality traits. On the PAQ, neuroticism has been highly correlated with the femininity subscale, while acting out has been highly correlated with the masculinity subscale (Spence & Helmreich, 1978). Similarly, the masculinity scale on the BSRI has been correlated with positive affectivity while the femininity scale has been correlated with constraint (Lubinski, Tellegen, & Butcher, 1981).

Cross-cultural Differences

Since masculinity and femininity are social constructs, gender roles may vary across cultures depending on the structure of society and what traits are valued. However, when examined cross-culturally, both the BSRI and PAQ have been shown to be reliable and valid measures of masculinity and femininity (Moneta, 2010; Wilson, McMaster, Greenspan, Mboyi, Ncube, & Sibanda, 1990).

Next Steps

Due to the changing nature of men and women's roles in society, it is likely that the assessment of the typically ascribed gender roles will also have to evolve. Most of the current methods used for assessing masculinity and femininity are based on societal norms and may eventually become obsolete or reassessed as culture and society continue to change.

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Narcissism, Assessment of

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Narcissism Defined

In empirical psychology, narcissism is conceptualized as a clinical personality disorder, as well as a subclinical personality trait (trait narcissism). Narcissism is characterized by egotism, grandiosity, dominance, and self-enhancement (Raskin & Hall, 1979). Individuals high in narcissism ("narcissists") feel entitled to special treatment because they perceive themselves as better than others. They attempt to maintain this self-image through eliciting admiration. Similarly, narcissists are sensitive to criticism and react aggressively to perceived threats to their self-image. In interpersonal situations, narcissists make good first impressions, often seen as charming, attractive, and assertive in short-term relationships (Back, Schmukle, & Egloff, 2010). However, these initial positive impressions degrade over time as more antagonistic elements of narcissism become apparent. Pathological narcissism is known as Narcissistic Personality Disorder (NPD) (see Narcissistic Personality Disorder) in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) (see DSM-V), and is typically diagnosed by a clinician. While it has similarities with trait narcissism, NPD is highlighted by great distress and impaired social functioning.

Subtypes

Narcissism can be divided into two subtypes: grandiose narcissism and vulnerable narcissism (Miller et al., 2011). While these subtypes are both associated with the exploitation of others, low empathy, and aggression, they have different nomological networks. Grandiose narcissism is characterized by feelings of superiority, entitlement, a need for admiration, and self-enhancement strategies. In contrast, vulnerable narcissism is characterized by low self-worth, desire for praise, hypersensitivity to perceived criticism, and beliefs that others have malevolent intentions toward them (*hostile attribution bias*). Despite some overlap, it

is currently unclear if the subtypes are mutually exclusive, or different dimensions of a continuous trait (Miller et al., 2011).

Related Constructs

Self-esteem

A common misconception of narcissism is that it results from excessive self-esteem (see Self-esteem, Theory of), or sense of self-worth. Indeed, both narcissism and self-esteem involve thinking positively about oneself. However, differences between these constructs suggest that narcissism is not the result of inflated self-esteem. Empirically, narcissism and self-esteem are only modestly correlated (Campbell, Rudich, & Sedikides, 2002). Highly narcissistic individuals are defensive, perceive themselves as superior to others, and demand praise. In contrast, individuals with high self-esteem do not necessarily compare themselves to others or display the antagonistic behaviors that encompass high trait narcissism (Brummelmann, Thomaes, & Sedikides, 2016).

Egotism

Egotism and narcissism are often used interchangeably. Although narcissism and egotism are strongly correlated (Veselka, Schermer, & Vernon, 2011), they are distinct constructs. Egotism reflects excessive self-interest, sense of superiority, and sense of self-importance (Campbell, Bonacci, Shelton, Exline, & Bushman, 2004). However, egotism lacks the antagonistic, aggressive reaction to criticism associated with narcissism. Instead, it is characterized by a need for self-enhancement. As such, egotism is better conceptualized as a component of narcissism, rather than an identical construct.

Theoretical Views

Narcissism within the Dark Triad

Subclinical narcissism, Machiavellianism and subclinical psychopathy form the "Dark Triad" (see Dark Triad) of personality (Paulhus & Williams, 2002). These traits involve social malevolence, exploitation of others, and low empathy. Narcissism is regarded as the "lightest," or least socially malevolent of the traits. In fact, aspects of narcissism (e.g. boldness, assertiveness, charm) may be perceived favorably in certain contexts (Rauthmann & Kolar, 2012). Measures of the Dark Triad include narcissism subscales; however, because these subscales are unidimensional and very brief, they do not necessarily capture all of the facets of narcissism.

Narcissistic Admiration and Rivalry Concept (NARC)

According to the NARC model, narcissism includes both assertive and antagonistic dimensions. In this model, Back et al. (2013) propose that narcissists employ two social strategies

to maintain their grandiose self-image: assertive self-enhancement (*narcissistic admiration*) and antagonistic self-protection (*narcissistic rivalry*). Narcissistic admiration involves grandiose fantasies (e.g. beliefs that they are influential or superior), striving for uniqueness, and seeking admiration. This, in turn, promotes popularity and other positive social outcomes. In contrast, narcissistic rivalry involves striving for superiority, degrading others, and responding aggressively to ego threats (e.g. anger and hostility in response to criticism). While this behavior protects against failure and rejection, it also promotes social conflict (i.e. antagonizing others).

Overview of the Measures

While several measures of narcissism have been proposed, two scales are the most prominent in the literature: the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979) and the Narcissistic Admiration and Rivalry Questionnaire (NARQ; Back et al., 2013). Measures of egotism and entitlement have also been developed, of which the Psychological Entitlement Scale (PES; Campbell et al., 2004) is the most widely used.

Narcissistic Personality Inventory

The NPI is the most popular measure of narcissism. It is a 40-item forced-choice scale with items based on the DSM criteria for NPD, adapted for assessment in the general population. However, researchers cannot agree on its factor structure. Using principal-components analysis, Raskin and Terry (1988) reported seven components of the NPI: Authority, Superiority, Exhibitionism, Entitlement, Vanity, Exploitativeness, and Self-sufficiency. Meanwhile, other researchers have found two to four factors for the NPI, though two- or three-factor solutions are the most commonly reported, generally reflecting Leadership/Authority (e.g. "People always seem to recognize my authority."), Entitlement/Exploitativeness (e.g. "I find it easy to manipulate people.") and Grandiose Exhibitionism (e.g. "I really like to be the center of attention"; Ackerman et al., 2011).

While users of the NPI traditionally rely on a total score, its factors have been linked to distinct outcomes. For example, Ackerman et al. (2011) linked their Leadership/Authority factor to adaptive outcomes (such as higher self-esteem), and their Entitlement/Exploitativeness factor to maladaptive outcomes (such as social toxicity). Because of these different nomological networks, some researchers recommend considering facets of narcissism in addition to total scores when assessing narcissism.

Additionally, shorter versions of the NPI have been developed for speedier administration: the NPI-16 (Ames, Rose, & Anderson, 2006) and the NPI-13 (Gentile et al., 2013). The key difference between these scales is that the NPI-16 is unidimensional, whereas the NPI-13 has three subscales (Leadership/Authority, Grandiose Exhibitionism, Entitlement/Exploitativeness), which parallels Ackerman et al.'s (2011) three-factor structure. All three measures have similar relationships with the Big Five (see Big Five) personality traits (i.e. negative correlations with Agreeableness and Neuroticism; positive correlations with Extraversion), as well as positive correlations with psychopathy (see Psychopathy) and aggression (Gentile et al., 2013).

Narcissistic Admiration and Rivalry Questionnaire

The NARQ is an 18-item measure of grandiose narcissism that assesses two dimensions: Admiration and Rivalry. These two factors, while correlated, reflect two distinct social strategies by which narcissists can maintain a grandiose self-image. Admiration reflects the self-promotion component of narcissism, whereas Rivalry reflects a strategy of antagonistic self-defense against social rejection. Each subscale has a total of nine items, which are scored on a 6-point Likert-type scale, and three facets. The facets of Admiration are grandiosity (e.g. "I am great."), uniqueness (e.g. "I show others how special I am."), and charmingness (e.g. "I manage to be the center of attention with my outstanding contributions."). The facets of Rivalry are devaluation (e.g. "Most people won't achieve anything."), striving for supremacy (e.g. "I want my rivals to fail."), and aggressiveness (e.g. "I often get annoyed when I am criticized."). Both the Admiration and Rivalry dimensions have demonstrated high internal consistency (Admiration: α = .88, Rivalry: α = .83; Back et al., 2013).

While both subscales converge with the NPI, they have different relationships with other traits and predict different behavioral outcomes. Additionally, the Rivalry dimension focuses on the more antagonistic elements of narcissism, which are less represented in the NPI. Admiration roughly maps onto the Leadership/Authority factor of the NPI, whereas Rivalry roughly corresponds to the Entitlement/Exploitativeness factor. Both dimensions of the NARQ are positively linked to pathological narcissism, entitlement, and psychopathy. However, Admiration is positively linked with self-esteem and neuroticism, whereas Rivalry is inversely related to self-esteem and neuroticism (Back et al., 2013). Based on these relationships, it is evident that the NARQ balances both adaptive and maladaptive elements, whereas the NPI focuses on the more assertive elements of narcissism. While both measures have shown non-trivial amounts of overlap, the NARQ has stronger unique associations with the Big Five traits compared to the NPI (Back et al., 2013).

Psychological Entitlement Scale

The PES is a nine-item measure of entitlement, or the extent to which an individual feels more deserving of respect and privilege than others (Campbell et al., 2004). Items are measured on a 7-point Likert-type scale (e.g. "I demand the best because I'm worth it."). The scale has demonstrated high internal consistency (α = .86 – .88; Campbell et al., 2004). The scale is unidimensional and demonstrates convergent validity with the NPI, both overall and with the seven factors reported by Raskin and Terry (1988). Entitlement has been reported to have negative correlations with Agreeableness ($r = -.19$) and Emotional Stability ($r = -.16$) of the Big Five personality traits, as well as with empathy ($r = -.16$) (Campbell et al., 2004). Although egotism and entitlement are not identical constructs to narcissism, they are key components of this trait. As such, the PES can be used to complement measures of narcissism, or on its own to measure individual differences in entitlement.

See Also

Antisocial Behavior, Assessment of
Dark Triad
Narcissistic Personality Disorder
Psychopathy

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Optimism/Pessimism, Assessment of

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Overview

Optimism, broadly defined, is one's tendency to expect positive outcomes, whereas pessimism is one's tendency to expect negative outcomes. A large body of research points to positive relationships between optimism and both psychological and physical health. Originally measured as a unidimensional construct (with optimism and pessimism at opposite poles) with the Life Orientation Test by Michael Scheier and Charles Carver in 1985 (see Optimism/Pessimism Carver and Scheier Theory), most modern research views optimism and pessimism as two separate but related constructs. Personality researchers have operationalized optimism and pessimism from both global and domain-specific perspectives. Assessments of these constructs, therefore, tend to follow the theoretical perspectives of their authors, based on how many dimensions are present in optimism-pessimism and whether it is being measured as a general trait or relating to a specific area. This entry includes descriptions of commonly used assessments of optimism-pessimism, all of which have been shown to have adequate internal consistency. Given that all the assessments are self-report and most validity data come from university student samples, however, work remains to be done to support construct and external validity of some.

Global Unidimensional Assessments

The *Life Orientation Test* (LOT, 1985), published by Scheier and Carver and revised in 1994 (LOT-R), was designed to assess dispositional optimism, a stable trait reflecting a belief that more good things will happen in one's life compared to bad things, based on the idea that optimism and pessimism were two ends of a single construct. Although numerous other models and measures have been developed, these instruments are the most widely used.

The LOT includes 12 items answered in a five-point (0 = strongly disagree, 4 = strongly agree) format. Four items measure optimism; four items measure pessimism, and four filler items are unscored. Higher scale scores indicate more optimism.

The LOT-R is a modification of the LOT that omits two LOT items thought to reflect coping strategies instead of positive expectations, adds a new optimism item, and omits a pessimism item, resulting in a 10-item scale. Three items measure optimism; three items measure pessimism, and four items are unscored. Higher scale scores indicate more optimism.

While still global and unidimensional, numerous indirect assessments of optimism-pessimism are rooted in Martin Seligman and colleagues' attributional style theory, where a person can have either an optimistic (good events happen because of internal, stable, and global factors; negative events happen because of external, unstable, and specific factors) or pessimistic (opposite of optimistic) explanatory style. Popular assessments of optimism and pessimism from this perspective include Christopher Peterson and colleagues' *Attributional Style Questionnaire* (ASQ, 1982), and *Expanded Attributional Style Questionnaire* (EASQ, 1988), and Robert Colligan and colleagues' *Optimism-Pessimism Scale for MMPI* (PSM, 1994) and *Revised Optimism-Pessimism Scale for MMPI and MMPI-2* (PSM-R, 1995).

The ASQ presents respondents with six good (e.g. "You do a project that is highly praised") and six bad (e.g. "You go out on a date and it goes badly") hypothetical events, and asks them to write a major cause of each event in their own words. Respondents then rate that cause on each of three attributional dimensions (its internality, stability, and globality) on seven-point scales. Composite scores are created for each event, with higher scores for positive events indicating more of an optimistic explanatory style, and higher scores for negative events indicating more of a pessimistic explanatory style.

The EASQ expands on the ASQ by including 24 negative events and omitting any positive events, in order to improve upon the modest reliability of the ASQ. Higher scores indicate more of a pessimistic explanatory style.

The PSM and PSM-R are assessments of optimistic and pessimistic explanatory style based on applying Peterson and Seligman's *Content Analysis of Verbatim Explanations* (CAVE) technique to responses from the Minnesota Multiphasic Personality Inventory (see Minnesota Multiphasic Personality Inventory (MMPI)). The PSM consists of 298 true-false items from the MMPI identified with the CAVE technique as reflecting one's explanatory style, with higher scores indicating a more pessimistic explanatory style. The PSM-R consists of 263 items appearing on both the MMPI and MMPI-2, again with higher scores indicating a more pessimistic explanatory style.

Global Multidimensional Assessments

Several assessments have been developed based on the conceptualization of general optimism-pessimism as at least two related constructs, with empirical support that people can have separate but related levels of both optimism and pessimism. Most of the assessments below focus on optimism and pessimism.

The *Optimism and Pessimism Scale* (OPS, 1989), designed by William Dember and colleagues to measure optimism and pessimism as two poles of a single trait, ended up (after their psychometric analyses) being the first scale to separate optimism and pessimism as related subtraits rather than a unidimensional trait. The OPS includes 56 items answered in a 4-point (1 = strongly agree, 4 = strongly disagree) format. Eighteen items measure optimism; 18 items measure pessimism, and 20 items are unscored. The scale provides subscale scores for each optimism and pessimism subtraits, with higher scores indicating more of the construct.

The *Extended Life Orientation Test* (ELOT, 1997) was created by Edward Chang and colleagues as a mix of seven LOT and eight OPS items with the purpose of supporting earlier research pointing to the bidimensionality of optimism and pessimism. The 20-item ELOT uses the LOT's answer format, and includes six optimism items, nine pessimism items, and five unscored items, with higher scores in each subscale indicating more of the construct.

The *Positive and Negative Expectancy Questionnaire* (PANEQ, 2001), created by Daniel Olason and Derek Roger, measures optimism, pessimism, and "fighting spirit," and acknowledges substantial overlap between positive/negative affect (see Positive and Negative Affective States, Assessment of) and optimism/pessimism, respectively. The 48-item instrument includes 10 Positive Affect/Optimism subscale items, 23 Negative Affect/Pessimism subscale items, and 15 Fighting Spirit subscale items, all answered in four-point (1 = strongly disagree, 4 = strongly agree) format, with higher scores on each subscale reflecting more of the construct.

The *Assessment of Personal Optimism and Social Optimism-Extended* (POSO-E, 2001), from Karl Schweizer and colleagues, provides a broader view of optimism, including social optimism (expecting positive outcomes in social/environmental domains), personal optimism (expecting positive outcomes in personal domains) and self-efficacy optimism (expecting that one's abilities will result in positive outcomes). The 44-item instrument includes 26 social optimism items, 8 personal optimism items, and 10 self-efficacy optimism items, all answered in a four-point (1 = incorrect, 4 = completely correct) format, with higher subscale scores indicating more of the construct.

The *Optimism-Pessimism-2 Scale* (SOP2, 2013), from Kemper and colleagues, is a unique bidimensional assessment of optimism and pessimism, in that it consists of only two items (one measuring optimism and one measuring pessimism). Each item provides a definition of the construct, then asks participants to evaluate on a seven-point (1 = not at all optimistic/pessimistic, 7 = very optimistic/pessimistic) scale how optimistic/pessimistic they are.

Domain-Specific Assessments

With the emergence of positive psychology, research on the relationship between optimism and health/well-being variables has increased substantially since the 1980s. Development of domain-specific assessments of optimism-pessimism has grown as well, including several measures of specific types and context-focused optimism-pessimism.

Unrealistic optimism (one's belief that disproportionately more good things than bad will happen to one's self) and *comparative optimism* (the belief that one will experience more good things than comparable others) are both related to positive self-enhancement biases. These constructs have been typically measured directly (e.g. "Compared to the typical person, what is the chance that ___ will happen to you?") and indirectly, where people assess their own chances of an event happening to them, and then the chances of that event happening to the "average" person.

Defensive pessimism refers to a domain-specific cognitive strategy in which people set low expectations for their performance in a future event, in order to cushion the impact of potential failure. Two scales created by Julie Norem, Nancy Cantor, and colleagues classify respondents as users of defensive pessimism, strategic optimism (its converse), or aschematic (neither strategy) in a given domain.

The *Optimism – Pessimism Prescreening Questionnaire* (OPPQ, 1986) classifies users of the above strategies in academic domains via a nine-item (four optimistic items, four pessimistic items, one selection item) questionnaire in an 11-point (1 = not at all true of me, 11 = very true of me) answer format, with lower scores indicating greater likelihood of using defensive pessimism.

The *Defensive Pessimism Questionnaire* (DPQ, 1993) works similarly, but allows for tailoring to a variety of domains. It includes 17 items answered in a seven-point (1 = not at all true of me, 7 = very true of me) format, producing total scores as well as subscale scores for pessimism and reflectivity (how much users think about possible outcomes of an event), with higher scores indicating greater use of that strategy in a given domain.

Given the large amount of research on the relationship between optimism and health outcomes, numerous optimism assessments meant for use in specific populations have been developed as well.

One such scale, the *HIV Treatment Optimism Scale* (HIV-TOS, 2000), created by Paul van de Ven and colleagues, measures optimism about HIV treatment programs. Intended for use among gay men, it includes 12 items answered in a four-point (1 = strongly disagree, 4 = strongly agree) format assessing the degree to which respondents are optimistic about the likelihood and treatment of HIV infection, with higher scores indicating more optimism.

Another example, the *Cancer Patient Optimism Scale* (CPOS, 2005), developed by Laurel Radwin and colleagues, measures optimism among cancer patients regarding their treatment choices and prognoses. It includes four items answered in a six-point format (1 = never, 6 = always) format, with higher scores indicating more optimism.

See Also

Charles S. Carver
Michael F. Scheier
Minnesota Multiphasic Personality Inventory (MMPI)
Optimism/Pessimism Carver and Scheier Theory
Positive and Negative Affective States, Assessment of

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Positive and Negative Affective States, Assessment of

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Affect Defined

Valence is typically viewed as a defining feature of affect, characterized by positive or negative individual responses that reflect either transient, "in the moment" responses (*state affect*) or relatively stable individual differences *(trait affect)*. Whereas state affect reflects how one *currently* feels, trait affect reflects how one *generally* feels. Arousal is another important component of affect, which reflects how activated or intensely one feels. While the earliest theories of emotion focused extensively on physiological responses, later theories actively incorporated both valence and arousal.

Affect researchers also differentiate moods and emotions, which vary by duration, intensity, and cause. Moods tend to be long lasting, diffuse, and not linked to any specific cause (i.e. a particular object or event). In contrast, emotions, such as anger, joy, and sadness, are more differentiated, tend to be more intense, of shorter duration, and are often felt in response to a specific eliciting object or event.

Self-Report Measures of Affect

Self-report measures of affect are the most commonly used and the easiest way to assess affect. Such measures reflect differences in theoretical approaches and in the underlying structure of affect. Research in the 1960s and 1970s focused extensively on discrete models of affect, typically assessing *specific* moods and emotions, such as anxiety, depression, and hostility. Two measures that have been widely used include Marvin Zuckerman and Bernard Lubin's (1965) Multiple Affect Adjective Check List (MAACL), described in their *Manual for the Multiple Affect Adjective Check List*, and Douglas McNair, Maurice Lorr, and Leo Droppleman's (1971) Profile of Mood States (POMS), described in their *Manual: Profile of Mood States*. These scales require individuals to indicate whether specific adjectives

describe their current, past, or general affect, and therefore, have been used to capture both state and trait affect. These measures reveal a similar basic set of affective experiences, including anger, fear, sadness, anxiety, and happiness; however, one significant limitation of these measures is that the specific scales demonstrate poor discriminant validity. That is, the various negative affect scales are typically highly correlated, revealing that people tend to experience negative emotions, such as sadness and anxiety, together. Such findings led researchers to develop hierarchical models of affect to capture *general* dimensions of affect. Two prominent models exist, each of which identifies two separate dimensions of affective experience. One model focuses on valence and arousal as the key dimensions, whereas the other focuses on positive and negative valence.

Valence and Arousal Dimensions

According to one influential model advanced by James Russell in his 1980 article, "A Circumplex Model of Affect," affective experiences vary in the extent to which they are *pleasant versus unpleasant* (i.e. the degree to which one feels good versus bad) and *activating or arousing* (i.e. the degree to which one feels energized and engaged versus sleepy and tired). Affective experiences (i.e. pleasure, excitement, arousal, distress, displeasure, depression, sleepiness, and relaxation) are spatially arranged in a circle that is organized by these two key orthogonal (i.e. independent) bipolar dimensions. Fear and sadness, for example, are both negatively valanced, but fear is high in arousal, whereas sadness is low in arousal. In this model, higher positive feelings are theoretically associated with lower negative feelings (i.e. positive and negative affect are inversely correlated), and higher feelings of arousal are associated with lower feelings of sleepiness. Although early identification of these dimensions emerged from investigations of individuals' lay understanding of how affective states relate to one another, James Russell was among the first to demonstrate that self-reported emotional experiences reflect this underlying structure. He initially did so by asking participants to indicate how accurately each of a series of adjectives representing the different areas of the circumplex described how they felt that day.

In 1989, James Russell, Anna Weiss, and Gerald Mendelsohn introduced the Affect Grid in their article, "Affect Grid: A single-item scale of pleasure and arousal." This measure was designed to be brief and easy to administer, and therefore could be used for continuous and repeated measurement of affect within individuals. The Affect Grid reflects the two dimensions of high versus low arousal and unpleasant versus pleasant feelings, each of which is represented by 9 boxes, producing a 9 × 9 grid. Participants place a checkmark in one of the 81 boxes to reflect how they are feeling. The Affect Grid demonstrates adequate convergent and discriminant validity with other measures of pleasure and arousal, but as a single-item measure, it is less reliable than longer scales. In addition, it does not provide information about discrete affective experiences. When time allows, longer scales are recommended for measuring affect.

Positive and Negative Valence Dimensions

In contrast to the Circumplex Model, a different approach rests on a bivariate model of affect and maintains that affective valence is not one bipolar dimension, but rather is captured by two independent dimensions reflecting positive and negative affect. According to

this model, positive and negative affect are not inversely correlated, but vary independently. Further, arousal is not separate from valence; it is assumed that as positive and negative affect increase, arousal also increases.

The most widely used self-report measure based on this approach is the Positive and Negative Affect Schedule (PANAS) developed by David Watson, Lee Anna Clark, and Auke Tellegen, and described in their 1988 article, "Development and validation of brief measures of positive and negative affect: The PANAS Scale." This measure requires respondents to indicate the extent to which they feel 10 positive affective states (active, alert, attentive, determined, enthusiastic, excited, inspired, interested, proud, strong) and 10 negative affective states (afraid, ashamed, distressed, guilty, hostile, irritable, jittery, nervous, scared, upset) using scales that range from 1 (*very slightly or not at all*) to 5 (*extremely*). Using the PANAS, one can assess different types of affective experiences (e.g. state versus trait) by asking participants to report their affect during different time frames, such as right now, today, the past few days, the past week, past few weeks, past year, and in general (i.e. on average).

Factor analyses utilizing orthogonal rotation (which constrains factors to be uncorrelated) consistently reveal separate positive and negative affect factors regardless of the time frame in which affect is being assessed. The PANAS has demonstrated high internal consistency reliability, high stability when measuring affect in long-term intervals (e.g. past year, in general), and expected fluctuations when measuring changes in affect that occur in the short term (e.g. right now, today). Significant evidence also reveals that the scales demonstrate convergent and discriminant validity. The PANAS has been translated into multiple languages and been used in many different countries, revealing the two-factor positive and negative affect structure described here, regardless of language or culture. The scale has also been used with both non-clinical and clinical populations. Thus, this scale is a highly reliable and valid way to assess positive and negative affect; however, it is not without criticisms.

Some researchers argue that several terms included in the scales are not clearly emotions, such as strong, active, and alert. While true, this does not diminish the value of the PANAS in differentiating positive and negative experiences. Others note that only high activation affect is included in the PANAS; low activation positive (e.g. serenity) and negative (e.g. fatigue) affective experiences are absent. Thus, some maintain that this accounts for the emergence of unipolar positive and negative affect dimensions. Subsequent research has demonstrated that adding low activation affect did not improve the psychometric properties of the scales, and sometimes these additions reduced the reliability and validity of the measure. Thus, despite some criticisms, the PANAS captures important underlying dimensions of affect and has performed well at predicting a wide range of important individual variables and outcomes. The PANAS continues to be very widely used in psychology and in many applied disciplines.

To demonstrate the hierarchical structure of affect and to assess lower level, more discrete affective experiences as well as the higher-order positive and negative affective dimensions tapped by the PANAS, David Watson and Lee Anna Clark developed a 60-item expanded version of the PANAS. This scale is described in their 1994 manual, *The PANAS-X: Manual for Positive and Negative Affect Schedule-Expanded Form.* The PANAS-X includes the 20 items from the original PANAS, as well as scales to assess 11 specific affective

experiences (i.e. fear, sadness, guilt, hostility, shyness, fatigue, surprise, joviality, self-assurance, attentiveness, and serenity). Thus, the PANAS-X allows for affect to be measured at two different levels of specificity. Based on factor analyses, Watson and Clark grouped the lower-order scales into three broad categories: *Basic Negative Emotion Scales* (fear, sadness, guilt, hostility), *Basic Positive Emotion Scales* (joviality, self-assurance, attentiveness), and *Other Affective States* (shyness, fatigue, surprise, serenity). The Basic Negative Emotion Scales are significantly intercorrelated and compose a higher-order negative affect factor. Likewise, the Basic Positive Emotion Scales are intercorrelated and form a higher-order positive affect factor. The remaining scales do not clearly and consistently load on either factor. Depending on researchers' interests, the various lower-order scales may be used to assess discrete affective states. Overall, the PANAS-X scale is a reliable and valid measure of positive and negative affect, though researchers have used it much less frequently than the PANAS.

Other Measures of Affect

Great efforts have been expended to identify measures of affect that do not rely on self-report, specifically physiological and neurological measures. These measures, along with many other self-report measures, can be reviewed in *The Handbook of Emotion Elicitation and Assessment*, a comprehensive volume edited by James Coan and John Allen (2007). The future of affect assessment may well lie in the development of non-self-report measures, which have the advantage of assessing affective markers without a perceiver's conscious awareness. Such measures reduce concerns that are inherent in many self-report measures (e.g. self-presentation, clarity of and access to knowledge about oneself). For example, implicit assessments of affect have recently emerged, such as the one developed by Markus Quirin, Miguel Kazén, and Julius Kuhl, and described in their 2009 article, "When nonsense sounds happy or helpless: The Implicit Positive and Negative Affect Test (IPANAT)." This brief measure assesses affective states by asking participants to rate the extent to which words derived from an artificial language (e.g. SAFME) sound like different affective adjectives (i.e. happy, helpless, energetic, tense, cheerful, inhibited). Though a relatively new measure, the IPANAT has so far demonstrated adequate reliability and validity for measuring both state and trait affect. As evidence using this measure and others accumulates, affect scholars will be better able to determine the extent to which the measures have widespread utility and value.

See Also

Anger and Hostility, Assessment of
Anxiety, Assessment of
Reliability, Issues of
Validity, Issues of

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Self-Esteem, Assessment of

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William James conceptualized self-esteem as being the degree to which people view themselves based on their accomplishments. Furthermore, these accomplishments are viewed through the lenses of the individual's goals and dreams. Since James' original conception of self-esteem, there have been numerous definitions, terms, perspectives, and positions taken or related to this term. Many counselors and other mental health professionals believe they know what self-esteem is, but most of those are unable to give a precise definition of self-esteem. Many of the attributes that are associated with self-esteem are the same as the self-concept construct, and the primary attribute happens to be one's attitudes toward the self. Self-esteem has been defined as the feelings of worth and acceptance toward the self based on one's own judgments of self. These judgments are derived from achievements, external sources, and as a consequence of one's awareness of competence. Morris Rosenberg has been one of the primary theorists to contribute to the understanding and measuring of self-esteem. Rosenberg believed that self-esteem included feelings of self-respect, self-liking, and self-acceptance. These aspects of self-esteem from Rosenberg's perspective have been applied to both the understanding of specific self-esteem and the understanding of global self-esteem. Global self-esteem deals with an individual's feelings toward the self as a whole, but specific self-esteem is how the individual feels about themselves in particular areas or aspects of their life, such as physical appearance, competency in career and academic areas, and social competence.

One of the most common confusions or misconceptions about self-esteem is that the term *self-esteem* can be interchangeably used with narcissism. However, the majority of the research has found that high or healthy self-esteem is more closely related to traits surrounding humility than it relates to traits of narcissism. Individuals with high self-esteem like themselves and accept themselves, but they do not typically participate in the exploitive, entitled, and grandiose behaviors of someone who is narcissistic. Self-esteem has been found to remain consistent throughout the lifespan of an individual. In other words, a person's self-esteem is set at a default of either positive (high) or negative (low), and though the degree may fluctuate throughout their lifetime their self-esteem typically reverts back to its default.

The function of self-esteem can be understood from three different perspectives: the cultural norm-fulfillment perspective, the interpersonal-belonging perspective, and the getting-ahead perspective. These three perspectives have been used to make contrasting predictions in relating the Big Five personality traits (Extraversion, Agreeableness, Neuroticism, Conscientiousness, and Openness to experience) with self-esteem. Some define self-esteem as the degree to which individuals live up to cultural norms, included with other people, and getting along in the social world. Rosenberg believed that once a cultural normative trait became important to a person, it would begin to impact the global self-esteem level of the individual rather than remain on the specific self-esteem level. Cooley found early on that self-esteem was largely impacted by interpersonal belongingness. This is where self-esteem and varying attachment theories from Bowlby, Reis, Baumeister & Leary, Hazan & Shaver, and Tajfel & Turner become intertwined. The getting-ahead perspective views interpersonal belonging as a way to reduce anxiety and to maintain one's own self-esteem.

Counselors, clinicians, and researchers have several options for assessing self-esteem levels. They can use self-report, behavioral observations, ratings from others, and interview methods. Self-esteem measurements come from a variety of theoretical backgrounds including behavioral and cognitive. Assessments have been developed to measure the self-esteem of both adults and children, and while some assessments have been found useful in some cross-cultural studies, most of them have been culturally biased. Most measures have been found to be unbiased as far as gender is concerned. The current adult measures consist of the Rosenberg Self-Esteem Scale (RSES) and the Janis-Field Feeling of Inadequacy Scale. The RSES incorporates questionnaires into research on self-esteem, and the RSES contains questions about 10 different items, and the responses are evaluated based on a four-point scale. While the RSES has been found to be very useful within the United States and other English-speaking countries, it is not as effective or useful in assessing the self-esteem levels of participants from other countries and cultures. The Janis-Field Feeling of Inadequacy Scale was developed from the view that self-esteem is essentially how comfortable a person feels in their social relationships. The scale measures a person's anxiety in social situations, self-consciousness, and feelings of personal worthlessness. Questions pertaining to 23 different items are used and evaluated based on a 5-point scale.

The current self-esteem measures for children consist of the Coopersmith Self-Esteem Inventory, the Pope's 5-Scale Test of Self-Esteem, and the Kid-KINDL. There has also been an adaptation to the Rosenberg Self-Esteem Scale so that it can be used with children. The Coopersmith Self-Esteem Inventory was developed based on the belief that self-esteem has to do with the expression of approval or disapproval of oneself, the extent to which one believes that they are talented or successful or that their lives have meaning and value. Coopersmith developed 58 evaluation criteria for children and 50 for adults. This scale requires participants to answer with either "Like me" or "Unlike me." Additionally, Coopersmith believed that a healthy self-esteem could be formed through parental warmth and acceptance, defined and enforced boundaries, and respect for action within those limits. The Pope's 5-Scale Test for Self-Esteem for children was developed with the basis that self-esteem is the evaluative feelings a person holds of themselves and the sense of worth that one has. Additionally, the developers of the scale believed that self-esteem, when evaluated, is the difference between the real self and the ideal self. According to this scale,

self-esteem is high when the real self and the ideal self are in agreement, and self-esteem is low when there are discrepancies between the two. This scale contains 60 questions and 5 subscales: Global Scale, Academic Scale, Body Scale, Family Scale, and Social Scale. The highest score possible is 20 and each subscale is used in the evaluation. A Lie Scale was also developed to evaluate response validity on this test. The Kid-KINDL was developed by Ravens and Bullinger and is used as an indicator of the quality of life in children. The developers defined quality of life as the subjective perception physical, mental, social, and functional aspects of well-being and health. The Kid-KINDL is meant for use with children between the ages of 6 and 18 years of age. The measure includes 24 questions regarding six areas: physical health, emotional well-being, self-esteem, family, friends, and school. The composite score of all these areas gives the quality of life score, and a high score in quality of life is interpreted as one having high self-esteem.

There are several more measures used for assessing self-esteem, but they have been designed for a general population rather than for specific demographics such as age, race, or gender. For example, there are three projective measures for assessing self-esteem while there are others that assess self-esteem from the cognitive and behavioral models. Most of these measures are self-report, but there are some which use observational reports rather than self-report. The projective tests include the Ziller Social Self-Esteem Scale, the Implicit Association Test (IAT), and the Implicit Relational Assessment Procedure (IRAP). The Ziller Social Self-Esteem Scale is a measure that uses topological representations of self and others in order to evaluate the individual's perception of their worth within the context of a self-other orientation. This measure uses very few verbal demands. The scale uses six different items pertaining to the self while using five different categories meant to describe your relationship with significant others. The IAT is an examination of an individual's latent attitudes toward the self. It is a computerized test where stimulus words appear on a screen and the participant responds to the word by striking one of two keys. One key is associated with positive feelings toward the word and the other key is associated with negative feelings toward the word or what it represents. Self-esteem is measured by the response time or the time it takes for the person to give their answer. There have been studies performed that used an implicit measure to differentiate between the actual self- and the ideal self-esteem. The results implicated that actual versus ideal self-discrepancy theories are important in guiding therapeutic interventions as well as the importance of further research on the implicit measurements of self-esteem. The IRAP is an assessment measure that was piloted in two studies and was found to be in line with the previous research regarding the effectiveness of the IAT and that the IRAP is as equally effective as the IAT.

Rational Emotive Behavioral Therapy (REBT) is concerned with treating irrational beliefs by replacing them with rational beliefs. Research on implicit and automatic processes has shown that behavior is in part controlled by automatically triggered impulses and stimuli which are connected to a reflective system. Explicit low self-esteem has been correlated with several psychological disorders such as depression and eating disorders. REBT theories differentiate between self-esteem and unconditional self-acceptance. Group Cognitive-Behavioral Therapy (GCBT) was also found to be a helpful intervention to improving and/or maintaining one's self-esteem. Several studies have examined the effectiveness of both cognitive assessments and self-report assessments. The Cognitive Distortions Scale (CDS) when used in conjunction with the

RSES was found to be a significant indicator of cognitive distortions and their relationship with self-esteem.

Limitations for measuring self-esteem come not only in their uses on a global or cross-cultural scale, but also from counselors and other qualified mental health professionals incorrectly using these assessments. In other words, these professionals are not using the assessments to ascertain the self-esteem level or do not use the results of these assessments as a serious part of the treatment for the patient. Some of the controversial limitations with self-esteem both in general and in the assessing of self-esteem levels involve the defining and terms used for self-esteem.

See Also

Self-consciousness, Assessment of
Self-esteem, Expressions of
Self-esteem, Theory of
Self-regulation
Subjective Well-Being, Assessment of

Further Readings

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Self-monitoring (to include the Self-Monitoring Scale), Assessment of

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Self-monitoring

Self-monitoring is a personality dimension that refers to the extent to which individuals modify their verbal and non-verbal self-presentation and expressive behavior in social situations. The goals of self-monitoring individuals are to: (1) accurately communicate authentic emotional states when appropriate; (2) communicate arbitrary emotional experiences when expected; (3) conceal improper emotional states; and (4) create the impression of experiencing an emotion when feeling none (Snyder, 1974). Accordingly, Self-Monitoring Theory is constructed on the premise that people differ meaningfully in the degree to which they choose to display their private selves in public situations (e.g. high self-monitors vs. low self-monitors). Individual differences in self-monitoring may help explain the discrepancy between private identities and public appearances.

High vs. Low Self-monitors

High self-monitors are attuned to the social cues of other individuals in social contexts (Snyder, 1979). Sensitivity to external indications of situational appropriateness tends to guide high self-monitors' self-presentation and expressive behavior. Acutely aware of social cues, high self-monitors adjust the public presentation of their expressive behavior to fit the situational context (e.g. acting sad when others are sad). The expressive self-presentation of high self-monitors in social contexts is dependent upon the situational appropriateness in an attempt to create an idealized public appearance (Snyder, 1979).

By contrast, internal cues (e.g. affective states, inner attitudes, and dispositions) are the driving forces that direct the expressive behavior and self-presentation of low self-monitors (Snyder, 1979). Accordingly, low self-monitors' apathy for situational appropriateness and disregard for expressive control guide their behavior in social situations. Unlike high

self-monitors, social cues are of little influence to low self-monitors who tend to overtly express their true inner feelings (Snyder, 1979). Low self-monitors exhibit a consistent cross-situational expression of behavior; there is congruence between the expressive self-presentation of low self-monitors and their private identities.

For decades psychologists have debated the relative influence of situational versus trait-based explanations of individuals' attitudes and behaviors. The theoretical construct of self-monitoring provides a potential resolution to the clash of schools of thought. For high self-monitors, behavior is interpreted as the product of situational factors whereas for low self-monitors, traits or dispositions predict behavior (Gangestad & Snyder, 2000). Attitudes explain the actions of low self-monitors but are not the best predictors of behavior for high self-monitors (Gangestad & Snyder, 2000). An acceptable solution to the principal opposition between both disciplines is that low self-monitors fit the trait-oriented concept of personality psychology while high self-monitors exemplify the situation-orientation view of social psychology.

The Self-Monitoring Scale

The Self-Monitoring (SM) Scale is a frequently administered personality measure for research purposes. The original 25-item SM Scale was developed to assess individual differences in self-monitoring tendencies (Snyder, 1974). The items measured five dimensions of self-monitoring: (1) concern with social appropriateness; (2) attentiveness to social cues for apt self-presentation; (3) regulation of expressive self-presentation; (4) situational specificity of expressive behavior and self-presentation control; and (5) adaptability of expressive behavior and self-presentation in different contexts (Snyder, 1974). While the 25-item SM Scale was developed to assess the five dimensions of self-monitoring, factor analysis demonstrated that the SM Scale did not measure distinct components but rather yielded a three-factor solution: Acting, Extraversion, and Other Directedness (Gangestad & Snyder, 2000). As a result, a primary controversy regarding the measurement of self-monitoring concerns whether or not self-monitoring is best explained by multiple factors as opposed to the unitary conceptualization (Fuglestad & Snyder, 2009).

A shorter revised SM Scale, which retains 18 of the 25 original items, was developed to address the multidimensionality found within the original 25-item measure. With a higher internal consistency, the general consensus is that the revised SM measure is more psychometrically sound (Gangestad & Snyder, 2000). Examples include: "I find it hard to imitate the behavior of other people" and "I guess I put on a show to impress or entertain others." Participants typically respond to the SM Scale in a "true" or "false" format. Items on the SM Scale are scored in the direction of high self-monitors. Despite disagreement regarding the optimal assessment and conceptualization of self-monitoring, the lasting popularity of the SM Scale seems to suggest that it assesses a noteworthy construct.

Both the 25- and 18-item SM Scales demonstrate internal consistency and test-retest reliability (Snyder & Gangestad, 1986). The scale is also robust to the effects of social desirability and other issues of response styles. Both the 25-item and 18-item SM Scales appear to be valid measures of self-monitoring as research comparing self-monitoring with similar constructs (i.e. need for approval, Machiavellianism, and extraversion) has demonstrated the

discriminant validity of the SM Scale (Snyder, 1979). The list of constructs with which self-monitoring is *not* meaningfully related is extensive, suggesting that self-monitoring is a distinctly unique construct (Snyder, 1979).

Revised Self-Monitoring Scale

The Revised Self-Monitoring Scale is a 13-item measure developed in response to criticism of the original 25-item SM Scale in order to provide a focused re-conceptualization of self-monitoring that measured responsiveness to the expressive behavior of others and aptitude for self-presentation modification (Lennox & Wolfe, 1984). Participants are asked to specify the degree to which each item mirrors their own behavior on a 6-point Likert-type scale: 0 = *certainly, always false* to 5 = *certainly, always true*. Examples include: "In social situations, I have the ability to alter my behavior if I feel that something else is called for" and "I am often able to read people's true emotions correctly through their eyes." Higher scores are representative of increased self-monitoring tendencies. The Revised SM Scale yields two subscales: ability to modify self-presentation (seven items) and sensitivity to the behavior of others (six items; Lennox & Wolfe, 1984). Scores can be summed within the two factors and interpreted according to the factor indices or as an overall measure of self-monitoring.

Junior Self-Monitoring Scale

The Junior Self-Monitoring Scale (JSMS) was designed to measure differences in self-monitoring tendencies among children (Graziano, Leone, Musser, & Lautenschlager, 1987). The JSMS consists of 24 items, 12 of which correspond to the adult SM Scale. Examples include: "I like to know how my classmates expect me to act and I can make people think I'm happy even if I'm not happy." Participants respond to the JSMS in a "yes" and "no" format and the measure is scored in the direction of high self-monitoring. The JSMS was constructed to mirror the five dimensions of self-monitoring represented in the original SM Scale but is more age-appropriate for the experiences of children (Graziano, Leone, Musser, & Lautenschalager, 1987).

Application to Other Life Domains

Self-monitoring has evolved from its contextual focus on the monitoring of public appearances and self-presentation to encompass a variety of other important life domains including interpersonal relationships as well as consumer and organizational behavior. Evidence has emerged to suggest that the primary distinction between low and high self-monitors is a focus on the internal world (e.g. attitudes and dispositions) for low self-monitors and the influence of the external world (e.g. appearances and roles) on high self-monitors.

Interpersonal Relationships

Just as high and low self-monitors differ in the extent to which they exercise control over expressive behaviors, so too do they differ in their conceptualization of friendships and romantic relationships. High self-monitors tend to select their friends based on shared interests (Fuglestad & Snyder, 2009). That is, the social worlds of high self-monitors are segregated such that certain people are favored over others for particular activities. While interactions with friends of high self-monitoring individuals are often classified as short and rather artificial, low self-monitors choose to engage in long and meaningful conversations. Friendships of low self-monitors are more likely to be formed on the basis of shared values rather than common activities (Fuglestad & Snyder, 2009).

The typical romantic relationship pattern of low self-monitors is characterized by a desire for an intimate, long-term relationship (Fuglestad & Snyder, 2009). Low self-monitors choose partners on the basis of compatibility and emphasize similar values. Honesty, loyalty, and kindness are the primary characteristics low self-monitors admire when selecting a partner. High self-monitors are most interested in attractiveness, sex appeal, and social status when selecting a partner. For high self-monitors who view love as a social game and have a non-committal attitude toward intimate relationships, philandering is not an uncommon occurrence (Fuglestad & Snyder, 2009).

Consumer Attitudes and Behavior

Self-monitoring orientations also affect receptiveness to advertising and consumer decision-making. Advertising strategies typically emphasize either image-oriented campaigns (e.g. "soft" sell) or focus on the practicality and quality of a product (e.g. the "hard" sell; Fuglestad & Snyder, 2009). Concerned with self-presentation and social appropriateness, image-oriented advertisements appeal more favorably to high self-monitors. In contrast, low self-monitors who value congruence between how they feel and behave are more responsive to quality-oriented advertising. Accordingly, the same pattern holds for advertising strategies designed to prevent consumers from engaging in a particular behavior (e.g. smoking).

Beyond advertising, the influence of self-monitoring is also apparent in consumer decision-making. The consumer decisions of high self-monitors are frequently made on the basis of external appearance and are influenced by the attractiveness of a product. By contrast, the consumer behavior of the prototypical low self-monitor is based on the internal characteristics of the product (Fuglestad & Snyder, 2009).

Organizational Behavior

In expanding the self-monitoring line of inquiry to encompass organizational behavior, high self-monitors focus on outward appearance in social situations, relationships, and advertising, which also extends to employment decision-making. Low self-monitors are more likely to hire an employee based on the candidate's personality fit for the job whereas

high self-monitors tend to hire applicants based on external appearance (Fuglestad & Snyder, 2009). When deciding which jobs to pursue, low self-monitors tend to select positions that mesh well with their own personalities while the prototypical high self-monitors prefer clearly defined positions that allow them to adjust their behavior to fit the role (Fuglestad & Snyder, 2009).

See Also

Factor Analysis in Personality Research
Self-consciousness, Assessment of

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Self-regulation, Assessment of

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Self-regulation entails purposeful management of oneself. McClelland and Cameron (2012) provide a clear, general definition of self-regulation: "controlling or directing one's attention, thoughts, emotions, and actions." It is generally agreed upon that the core feature of self-regulation involves asserting internal control. In essence, this means monitoring and adjusting performance in accordance with current demands. Response patterns are dictated by potential rewards being contrasted with existing threats and punishments. Self-regulated individuals can effectively adjust their behavior in accordance with situational expectations.

Many words have been substituted for the term self-regulation: executive functioning; executive control; self-control; inhibition; self-management; and self-monitoring. Related terms are often used interchangeably, leading to potential confusion. Adopting the American Psychological Association's controlled vocabulary, Burman, Green, and Shanker (2015) conducted a modularity analysis and mapped the semantic network for self-regulation to reveal six main clusters: (1) self-monitoring/self-management/self-evaluation; (2) self-monitoring/personality traits/reflectiveness; (3) agency/locus of control/self-determination; (4) self-control; (5) social behavior; and (6) learning/learning strategies. Terms across clusters are conceptually similar but may have nuanced, and perhaps essential, differences.

Measuring Self-regulation across the Fields of Psychology

Dinsmore, Alexander, and Loughlin (2008) studied the historical trajectory of self-regulation research, which evolved into several related lines. Originally, emotional and behavioral self-regulation were emphasized. The study of motivation grew from this line of work. The metacognitive perspective came about in parallel, emphasizing self-awareness of thinking. A focus on self-regulated learning came about later and was specific to an academically based environment. Expansions of research in other settings evidenced how self-regulation

capabilities impact health, sports, and career arenas. Modern conceptualizations often discuss self-regulation as a cognitive concept. The subsections that follow address how different fields within psychology conceptualize and measure self-regulation.

Clinical and Developmental Psychology

The clinical literature addresses failures of self-regulation. It is known that self-regulation is weakened by diagnosed psychopathology. Since impulsive behavior is rarely adaptive and can be destructive, poor self-control is central to a number of diagnosed disorders. When driven by unleashed emotions, a variety of problem behaviors can develop, such as delinquency, gambling, drug/alcohol overuse, suicide attempts, hyperactivity, aggression, and binge eating. Even unwanted habits like nail biting or nose picking are examples of the inability to control behaviors that are maladaptive and perhaps self-injurious. Some practitioners would say that Attention-Deficit/Hyperactivity Disorder with prominent hyperactive and impulsive features is the quintessential example of poor self-regulation. The person knows right from wrong but may not think before acting.

Clinical psychologists typically use interviews, observations, and rating scales to measure poor self-control or impulsivity. The Barratt Impulsiveness Scale and the UPPS Impulsive Behavior Scale are commonly employed self-report rating measures. Impulsiveness appears to be multifaceted, and can include factors such as a sense of urgency, racing thoughts, the tendency to act quickly, and a lack of planning. Behavioral manifestations of impulsivity can be witnessed, but rating scales help to pinpoint underlying personality and cognitive factors.

Gaining control over emotions and behavior is of interest to developmental psychologists. Research simulations incorporating practical scenarios are used to investigate impulsivity. For instance, tempting, demanding, or upsetting situations can be used to better understand temperamental reactivity. Extreme emotions or an instant gratification mindset can change one's sense of priorities. Mischel's classic marshmallow test examines impulse control. In this laboratory method, a small immediate reward is offered (such as a tasty marshmallow), with the provision that a larger reward will be supplied (two marshmallows) if the child waits for a period of time before consuming the initial reward. Children who can delay gratification tend to have better real-world outcomes, such as higher cognitive scores and stronger academic performance.

Educational Psychology

To become productive members of society, children must develop enough self-control to be capable of learning. Emotional control and positive social skills in young children appear to be more predictive of preschool- and school-readiness than intelligence or achievement scores. Moreover, poor self-regulation has been associated with peer rejection and negative attention from teachers. Self-regulation allows for an intentional, motivated approach to learning wherein students sustain attention to lessons and assignments yet inhibit activities that would interfere with their educational goals. Self-regulated learners can set goals, enact cognitive strategies, monitor their progress, and reflect upon their learning experiences.

Structured interviews and questionnaires are often used to assess use of learning strategies and motivating factors versus amotivating factors (like anxiety). Some research in self-regulated learning has used teacher ratings of pupil behavior. Students can be asked to perform an academic task and rate their perceived ability at that type of task. Rating scales standardly inquire about metacognitive strategies like planning and reflection on the learning process. Personal evaluations of self-efficacy and level of effort are also commonly considered.

Social and Personality Psychology

Human learning and behavior occur through social interactions. People tend to choose relationships with those who have similar goals. While people vary in attitudes, values, and level of motivation toward certain tasks, they are generally more accepted by others when they conform to the prescribed set of expectations valued in that environment. Through appraising the social and emotional importance of a given action, people can predict if their behavior may be accepted or be considered deviant. These decisions are sometimes conceptualized as the conflict between approaching and avoiding a certain situation.

Personality and social psychologists often discuss self-regulation by its relationship with the Big Five traits. When it comes to approach-avoidance conflicts, Extraversion and positive affect are associated with approaching situations while Neuroticism and negative affect are related to withdrawal tendencies. A cautious, thoughtful approach seems to generally result in positive management of behavior, especially in novel situations. Therefore, higher Conscientiousness has been related to self-control. Isler, Liu, Sibley, and Fletcher (2016) found that those who are too reward-focused yield higher scores on Openness and Extraversion. They also identified a "brittle profile," or the personality style seen in those who are not resilient and thus tend to experience poor interpersonal outcomes. Brittle people have higher Neuroticism scores combined with lower scores on all other Big Five traits (i.e. Extraversion, Openness, Agreeableness, Conscientiousness).

Other personality tools facilitate the measurement of self-regulatory prowess. Self-appraisal inventories assess personal evaluation of general self-esteem or self-efficacy in focused areas. Locus of control questionnaires can be useful because high self-regulation has been related to having an internal locus of control. Those with an internal locus of control believe they can have a direct impact on their personal circumstances as opposed to feeling like luck and fate are involved. Emotional intelligence (EI) encompasses management of emotions as well as self-awareness and empathy for others. Various EI measures contain scales of self-management, impulse control, self-control, and self -regulation.

Cognitive Neuropsychology and Neuroscience
Functional imaging evidence has fairly conclusively determined that conscious, goal-directed behavior (or executive functioning) is facilitated by the prefrontal cortices of the brain. A break-down in self-regulation exists in cases of injury to the frontal lobes. Damage typically results in dysregulation of thoughts, behaviors, and emotions.

Control over thinking can be unobtrusively measured. Flexible thinking, inhibitory control, and working memory are three main aspects of executive functioning that can be assessed through standardized neuropsychological measures. Well-known measures include the Wisconsin Card Sorting Test, the Stroop, stop-signal tasks, continuous performance tests, and span tasks. The Wisconsin requires the test-taker to flexibly sort cards based on changing examiner feedback. This involves deftly shifting between different concepts. The Stroop, a measure of inhibition, is a timed task. Subjects are expected to say the color of the ink that words are printed in as opposed to reading the words themselves. For instance, when the word blue is printed in green ink, the examinee needs to suppress the natural response to read blue and instead say green. Inhibition can also be assessed through stop-signal (or go/no-go) tasks wherein subjects are asked to respond one way when faced with a certain signal but to stop responding when a different signal is present. Continuous performance tests assess monitoring and inhibition; monotonous visual or auditory stimuli are presented, with the task being to only respond when a specific type of stimulus occurs. Traditional working memory measures require an examinee to temporarily hold and process information. There are many types of span tasks, but one example involves computing math problems while simultaneously recalling words that appear on a computer screen after each math operation.

The field of neuroscience brings dynamic brain imaging evidence that reveals top-down processing is controlled in the prefrontal cortex (where decisions are made about both social and cognitive matters) while bottom-up processing from the emotional limbic lobe is being processed simultaneously. Using this dynamic brain processing model, literature on *hot* processing (i.e. dealing with emotional reactivity) and *cool* processing (i.e. predominantly cognitive in nature) can be integrated. Hofmann, Schmeichel, and Baddeley (2012) connect the *hot* and *cool* lines of research by pointing out that cognitive processes allow for social and emotional control. For example, enhancing working memory capabilities can generalize to reduce problem eating and alcohol-using behaviors.

Conceptual Conclusions and Future Directions

Across fields of psychology, operational definitions of self-regulation and its related terms can be clarified. Dinsmore and colleagues (2008) uncovered an "undeniable conceptual core" between the terms self-regulation, metacognition, and self-regulated learning, but warned that the "conceptual haze" will only become fuzzier if distinctions are not made. Schunk (2008) recommends clearer, standardized, theoretically based definitions and assessment of cognitive control processes like metacognition, self-regulation, and self-regulated learning in order to better arrive at distinctiveness between concepts. When well-delineated definitions are applied, precise measurement tools can be chosen or developed to better align with conceptual understanding.

To fully encapsulate the complexities of human behavior, Collins and colleagues assert that complete theories of personality need to incorporate an inhibitory process (Collins, Jackson, Walker, O'Connor, & Gardiner, 2017). Inhibition, or the ability to restrain one's behavior, has been studied across a range of personality variables and cognitive variables.

While much work has attempted to articulate the distinction between cognitive process and personal tendencies (i.e. the underlying personality), it appears both personal inclinations and mental processes contribute to a person's self-regulation capabilities. Most specifically, a convergence of evidence points to the idea that mental mechanisms are needed to explain personality differences.

With a growing focus on measuring cognitive variables, self-report measures still appear to be the most common method to assess components of self-regulation. However, the study of stable personality traits may not tell the whole story. Experimental simulations can assist in appreciating how the changing environmental context impacts personality and emotional states. Participants can be placed in specific situations so that information can be collected through observation, interview, think-aloud protocols, or journaling/diaries. Most importantly, to fully understand the complex processes involved in self-regulation, qualitative measures need to be combined with performance-based, cognitive scores. Approaching the same concept from different angles or theoretical orientations should further conceptual understanding. For instance, an interdisciplinary method could assess impulsivity as a personality variable while comparing it to measures of cognitive inhibition.

See Also

Behavioral Inhibition/Activation, Personalilty Correlates of
Big Five
Impulsivity
Self-regulation

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Self-consciousness, Assessment of

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Self-consciousness

Self-consciousness (SC) involves the process of becoming the object of one's own attention and awareness. Based on theories stemming back decades, self-consciousness has been conceptualized and subsequently operationalized in many different ways over the years. The most well-known and widely used measure of self-consciousness was developed by Feningstein, Sheier, and Buss (1975) and includes the three domains of private self-consciousness, public self-consciousness, and social anxiety. Self-consciousness has been found to relate to a number of other constructs including sensitivity to peer rejection, level of aggression following a threat, acceptance of responsibility, self-esteem, anxiety and depression.

Recent frameworks describe self-consciousness as a form of self-reflection which can be associated with either psychological well-being (i.e. adaptive self-consciousness) or psychological distress and negative affect (i.e. maladaptive self-consciousness) and have explored the connection of self-consciousness to related constructs such mindfulness, self-absorption, and self-rumination. Maladaptive, or unhealthy, self-consciousness occurs when self-attention is excessive and narrow, and has been found to be related to several negative mental health outcomes. If there are inconsistencies between the self and expectations, the subject may readjust how they view themselves and/or their personal standards in order to promote consistency and a positive image. This occurs in both public and private self-consciousness, depending on the direction of focus (DaSilveira, DeSouza, & Gomes, 2015).

The Self-Consciousness Scale

The original Self-Consciousness Scale (SCS), developed by Feningstein, Sheier, and Buss (1975) is a 23-item scale designed to measure an individual's tendency to focus attention on the self. The scale reflects three dimensions of self-consciousness private

self-consciousness, public self-consciousness, and social anxiety within the individual. Public self-consciousness consists of a general understanding that the self has a social effect on others (e.g. "I'm concerned about what other people think of me"; "I usually worry about making a good impression") while private self-consciousness focuses on attending to inner thoughts and feelings (e.g. "I'm always trying to figure myself out"; "I'm often the subject of my own fantasies").

Social anxiety is viewed as distress which occurs in the presence of others. Both public and private self-consciousness include self-focused attention whereas social anxiety occurs in reaction to these feelings (e.g. "It takes me time to overcome my shyness in new situations;" "I feel anxious when I speak in front of a group"). When attention is turned inward, a person might develop anxious thoughts and as such, anxiety might emerge due to either public or private self-consciousness (Fenigstein, Scheier, & Buss, 1975). Though correlated, the authors argue that public self-consciousness is distinct from social anxiety in that not all individuals who are conscious of themselves as social objects necessarily develop anxiety regarding that perception.

Though used extensively in the literature, the Self-Consciousness Scale is not without controversy. Questions regarding the theoretical foundation as well as the number of factors have been raised. Some have proposed that the dimension of public self-consciousness be further divided into "style consciousness" (awareness of behavior observed by others) and "appearance consciousness" (focus on how one looks to others) or alternatively into "self-reflectiveness" (emphasizing self-exploration and self-evaluation) versus "internal state awareness" (i.e. focus on feelings and physiological reactions).

The Revised Self-Consciousness Scale

Tested extensively with undergraduate students, the original 23-item Self-Consciousness Scale (Fenigstein, Sheier, & Buss, 1975) was later revised by Scheier & Carver (1985) to improve comprehensibility in the general population. The Revised Self-Consciousness Scale consists of 22 items based on the original scale but modified to be less abstract (e.g. "I'm often the subject of my own fantasies" to "I often daydream about myself"; "I feel anxious when I speak in front of a group" to "I feel nervous when I speak in front of a group"). The current scale also modified the response format from the original scale (i.e. 0 = extremely uncharacteristic, 4 = extremely characteristic) to more precise rating answers (i.e. 3 = a lot like me, 2 = somewhat like me, 1 = a little like me, 0 = not at all like me). In order to assess the reliability of the revised scale, 298 undergraduate students completed both the original and revised scale. Results suggested that participants performed similarly on both versions of the scale, though researchers recommend the revised version be used with general (non-college student) populations.

Though the question of the number of factors and sub-factors has continued to be tested and retested with different populations, the original 3-factor solution proposed by Fenigstein, Sheier, and Buss (1975) consisting of private self-consciousness, public self-consciousness and social anxiety has largely been upheld. The Self-Consciousness Scale has been used in hundreds of published studies and has been translated into numerous languages and tested in multiple countries in Europe, North America, South America, Asia and the Middle East.

The Self-Consciousness Scales for Children

The Self-Consciousness Scales for Children (SCS-C; Abrams, 1988) includes 15 items based on the adult version. Higa, Philips, Chorpita, and Daleiden (2008) subsequently created a 28-item scale for use with children as well. The Higa et al. (2008) measure was further modified in 2014 by Takisihima-Lacasa, Higa-McMillan, Ebesutani, Smith, and Chorpita resulting in the Revised Self-Consciousness Scale for Children (R-SCS-C). Research on the Revised Self-Consciousness Scale for Children suggests that a similar 3-factor solution based on private self-consciousness, public self-consciousness and social anxiety can be found across age and gender.

Additional Features of Self-consciousness

In addition to the feature of private/public, researchers have also explored the dimensions of past/present and adaptive/maladaptive self-consciousness. According to DaSilveira, DeSouza, and Gomes (2015), the past/present features of self-consciousness are divided by two approaches: the reflective approach and the present approach. The reflective approach is connected to private self-consciousness and states that the perception one has about their current self is influenced by the perception of their past or future selves. More specifically, this perspective requires the individual to reflect on a previous experience, evaluating thoughts, feelings, and behaviors.

Conversely, the present approach assumes that self-consciousness can be associated with the present moment without reflecting on the past or future. This school of thought focuses on mindfulness, which involves maintaining consistent attention to the present and expressing an open attitude toward current experiences (DaSilveira, DeSouza, & Gomes, 2015). Regardless of the individual's approach, regulating one's internal processes can lead to either adaptive or maladaptive self-conscious reactions or responses.

The adaptive/maladaptive features of self-consciousness encompass the paradox of focusing on one's self. Although helpful for reflection, awareness, and well-being, self-attention can also lead to negative emotions. As a result, it is important to recognize the distinction between the benefits of becoming aware of one's beliefs as well as the detriments of excessive self-focus. Maladaptive self-attention occurs as a self-regulation process when self-evaluation and standards are inconsistent. This contradiction often leads to negative psychopathological states, such as depression and anxiety. As such, it is not surprising that most psychological disorders are characterized by amplified self-focused attention, in which the individual creates impossible, unattainable standards. Though this can be seen as maladaptive, with proper treatment, these experiences, behaviors, and thoughts can act as an opportunity for self- evaluation. For instance, an individual with a psychological disorder may experience inconsistencies with public and/or private self-consciousness and adjust their behavior through therapy and self-regulation of symptoms (DaSilveira, DeSouza, & Gomes, 2015).

Future Directions

With the increase in social networking activity, displays of public and private information about the self may be changing. Recent research using the Self-Consciousness Scale has explored how the construct relates to the increasing popularity of social media.

Shim, Lee, and Park (2008) found that public self-consciousness was positively associated with a greater frequency of posting photos and replying to comments. Posting photos online is rewarding to those with high public self-consciousness because it allows them to manipulate their outside impression more successfully. Users may spend unlimited time posing and editing photos before posting them online. This process enhances the impression one may have on other users, increasing the perception of positive public self-consciousness.

Current research has not yet assessed how online public self-consciousness may be distinct from earlier definitions of self-consciousness and how this relates to private self-consciousness and social anxiety among social media users. Content on such applications presents individuals with an immediate presence of peers and perceived social standards. Users may be presented with reminders of unrealistic standards, such as those associated with body image. Future research should consider exploring how different aspects of self-consciousness relate to social networking behaviors.

See Also

Charles S. Carver
Michael F. Scheier
Self-concept, Expressions of the
Self-monitoring (to include the Self-Monitoring Scale), Assessment of

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Subjective Well-being, Assessment of

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The study of subjective well-being aims to go beyond just the absence of illness, anxiety (see Anxiety for a discussion of the conceptualization of anxiety and Anxiety, Assessment of for a discussion of the assessment of anxiety), depression (see Depression for a discussion of depression), or other psychological symptoms. Rather than being just the absence of the negative, subjective well-being is a positive state of satisfaction or contentment. However, there are many diverse ways that subjective well-being is conceptualized and measured. For example, the exact operational definition, that is, way the construct is measured or defined, varies greatly between measures of subjective well-being. Some measures use the term well-being, while others use the terms satisfaction with life, quality of life, happiness, or flourishing. In addition, some researchers measure subjective well-being on a one-dimensional scale, so that there is only one well-being, satisfaction with life, or quality of life score generated by the measure. However, other measures have been created that provide a multi-dimensional depiction of a respondent's well-being, with several subscales for the measure. Depending on the researchers' or clinicians' goals, the most appropriate measure of subjective well-being may vary. Several commonly used measures of subjective well-being are described below, with a description and a discussion of some of the unique features and advantages of each measure.

Satisfaction with Life Scale

The Satisfaction with Life Scale (SWLS; Diener, Emmons, Larsen, & Griffin, 1985) measures global life satisfaction. The measure was designed to focus on life satisfaction only, and by design does not measure positive and negative affect (see Positive and Negative Affective States, Assessment of for a discussion on assessing positive and negative affect) or other constructs, such as loneliness (see Loneliness for a discussion of assessing loneliness). The SWLS conceptualizes satisfaction with life as a cognitive-judgmental process, meaning that an individual's satisfaction with life is a result of a comparison of one's life circumstances

to what the person believes to be an appropriate and relevant standard. This standard is internally set by each individual; it is not externally determined by others. Each person may judge different domains, such as health or energy, to be of more or less importance. Therefore, the SWLS measures life satisfaction as a global construct, rather than as the result of a summary of satisfaction scores across individual domains. There are five items, each answered on a seven-point Likert-type scale with 1 = *strongly disagree* and 7 = *strongly agree*. Final scores range from 5, indicating low life satisfaction, to 35, indicating high life satisfaction. Examples of items on the SWLS include: "In most ways my life is close to ideal," "The conditions of my life are excellent," and "I am satisfied with my life." The SWLS was developed using both college student and older adult populations and is appropriate to use with different age groups. Internal consistency and test-retest reliability were both found to be high.

The Psychological Well-being Scales

The Psychological Well-being Scales (Ryff, 1989) sought to operationalize several theoretical domains that were believed to be related to psychological well-being. The scales specifically measure well-being along six separate domains of psychological well-being. Those domains include *self-acceptance*, that is having a positive view toward oneself; *positive relations with others*, that is having warm, trusting relationships with others; *autonomy*, that is being independent and self-determined; *environmental mastery*, that is having the ability to manage the environment; *purpose in life*, that is having life goals and a sense of directedness; and *personal growth*, that is experiencing the feeling of continued growth. The original scales had 20 items per scale, although shorter versions have since been developed. Each item is responded to on a 6-point scale indicating level of agreement with each item, ranging from *completely disagree* to *completely agree*. The measure was developed using a mixed-age population that included younger, middle-aged, and older adults. Confirmatory factor analysis supported the six-subscale structure. Internal consistency and test-retest reliability were both found to be high.

Quality of Life Inventory

The Quality of Life Inventory (QOLI; Frisch, Cornell, Villaneuva, & Retzlaff, 1992) is a clinically oriented measure of quality of life that is domain-based, rather than global in its assessment. The QOLI has 17 items, each of which are rated on importance to the respondents' happiness and satisfaction on a 3-point scale (0 = *not at all important*, 1 = *important*, and 2 = *extremely important*). Each item is also rated on the respondents' satisfaction in that domain on a scale from −3 = *very dissatisfied* to 3 = *very satisfied*. For each item, a weighted score is then calculated, taking into account both the importance and satisfaction in each area, by multiplying the importance rating by the satisfaction rating. The resulting weighted score for each item ranges from −6 to 6. The overall QOLI score is then calculated by averaging the weighted scores for all items that have non-zero importance ratings.

The QOLI measures importance and satisfaction on 17 domains, health, self-regard, philosophy of life, standard of living, work, recreation, learning, creativity, social service, civic action, love relationship, friendships, relationships with children, relationships with relatives, home, neighborhood, and community. The QOLI was developed using a number of samples, including inpatient VA patients seeking treatment for alcohol dependence or abuse, former VA patients who had previously sought treatment for alcohol dependence or abuse, patients seeking alcohol and drug abuse treatment at a private hospital, students at a college counseling center, undergraduate psychology college students, and individuals who were criminal offenders on probation in a structured rehabilitation program. A particular strength of the QOLI is that because it was designed to be used in clinical settings, it may be especially appropriate to measure treatment progress, assess the effectiveness of interventions, and to assist in treatment planning. The QOLI was found to have strong internal consistency and test-retest reliability.

Oxford Happiness Questionnaire

The Oxford Happiness Questionnaire (OHQ; Hills & Argyle, 2002) measures personal happiness on a one-dimensional scale. It is derived from the Oxford Happiness Inventory (OHI), which has four response options that are different for each item. The OHQ, however, uses a less bulky uniform response scale. Specifically, the OHQ consists of 29 items, all of which are responded to on a 6-point Likert-type scale (1 = *strongly disagree* to 6 = *strongly agree*). About half of the items are reverse scored, which should be helpful in determining whether participants are carefully reading and responding to the questions. In addition, since the respondents answer on a uniform scale, the items can be more easily mixed together with items from other scales to reduce bias when answering the questions. A shorter version of the OHQ, which consists of eight items, was also developed to use when time is more limited. Examples of items on both the longer and shorter versions of the OHQ include: "I feel that life is very rewarding," "I am well satisfied with everything in my life," "I find beauty in some things," "I do not have particularly happy memories of the past," and "I don't feel particularly pleased with the way I am," with the last two items being reverse coded. The OHQ was developed using an undergraduate student sample, as well as the students' friends and family members. The OHQ was found to have adequate internal consistency reliability and construct validity.

Subjective Happiness Scale

The Subjective Happiness Scale (Lyubomirsky & Lepper, 1999) is a global measure of subjective happiness, meaning an overall rating of whether an individual considers him or herself to be a happy or unhappy person. The scale consists of four items. Specifically, one item asks respondents to rate how happy they consider themselves, with another item asking them to rate how happy they consider themselves as compared to their peers. Two other items provide descriptions of happy and unhappy people and ask the respondents to

indicate the extent to which the portrayal describes them. Each of the items is rated on a 7-point scale. For the ratings of happiness for themselves and their peers, 1 indicates less happiness and 7 indicates more happiness. For the descriptions of happy and unhappy people, 1 indicates the characterization does not at all describe them and 7 indicates the characterization greatly characterizes them. A composite score is then calculated by averaging the responses to the four items, with one item (the item with a description of unhappy people) being reverse coded. The Subjective Happiness Scale was developed with college and high school students, as well as working and retired adults, with participants from both the United States and Russia, making for a sample with diverse ages and backgrounds. One particular advantage of the measure is that it is relatively short, so as to not overburden the participants. The Subjective Happiness Scale was found to have strong internal consistency, test-retest reliability, convergent validity, and discriminant validity.

Flourishing Scale

The Flourishing Scale (Diener et al., 2010) measures the degree to which the respondent perceives personal success in important domains of functioning, such as relationships, competence, and having purpose in life. The scale was originally called Psychological Well-being, but the name was changed to reflect that the content of the scale is broader than just psychological well-being. The measure has 8 items, which are all rated on a scale from 1 (*strong disagree*) to 7 (*strongly agree*). The scale results in one global score, reflecting the respondents' perceptions of themselves across diverse domains of human functioning, such as relationships, self-esteem, purpose, and optimism. All items are scored in a positive direction, with resulting scale scores ranging from 8 (*strong disagreement with all items*) to 56 (*strong agreement with all items*). A high score indicates respondents have a positive view of themselves in these important areas of functioning. Examples of items on the scale include "I lead a purposeful and meaningful life," "My social relationships are supportive and rewarding," "I am engaged and interested in my daily activities," "I am competent and capable in the activities that are important to me," and "I am optimistic about my future." The measure was developed using a college student sample from across the United States as well as Singapore. The Flourishing Scale demonstrated strong internal consistency, test-retest reliability, and convergent validity.

See Also

Anger and Hostility, Assessment of
Anxiety
Individual Differences in Coping with Stress
Optimism/Pessimism, Assessment of
Personality and Positive Psychology
Self-esteem, Assessment of

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California Psychological Inventory (CPI)

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Originally developed by Harrison Gough (1956), the California Psychological Inventory (CPI) is a self-report personality measure composed of 434 true-false items. The test contains information regarding a person's typical behavioral patterns, feelings and opinions, and attitudes centered on social, familial, and ethnic concerns. Although the CPI was primarily developed for young adults in the general population, the test has been used to evaluate individuals with ages ranging from 12 to 70. Results of the CPI are plotted on 20 scales and three factors that examine components of interpersonal relationships that are presented in everyday, descriptive language.

The philosophical underpinnings of the CPI are based on common and enduring personality factors that are thought to be relevant across cultures including dominance, self-control, and tolerance. Gough referred to these common variables as "folk concepts" because they are common and easily understood. According to Gough, the use of such concepts provides the CPI with cross-cultural relevance, ease of comprehension, and strong predictive power. As such, the focus of the CPI centers on practical utility, understandability, and predictive accuracy. For these reasons, the CPI is one of the most frequently used personality measures used by professional psychologists, with more than 2,000 studies having used or researched it.

Although the CPI was designed to be easily understood, competent interpretation requires a trained professional. Within the structure of the test are sophisticated factors that need to be cautiously considered and explained. Interpretation of the CPI involves taking into consideration scores within an individual's overall context (e.g. age, culture, and history), evaluating the interactions between two or more scales, and identifying person-specific trends pertinent to each test-taker. For example, a recent high school graduate's high score on the Intellectual Efficiency scale may be low for a person who recently graduated from a graduate program.

History and Development of the CPI

The CPI was initially developed to evaluate relatively enduring interpersonal and personality traits in the normal population. Gough published his original scales in 1948, but it was not until 1951 that the first copyrighted version of the 15 scales appeared. In 1957, a completed set of 18 scales was published by Consulting Psychologists Press (CPI 480). The CPI was further revised in 1987 (CPI 462) with two scales being added (Empathy and Independence), resulting in a total of 20 scales. The resulting 20 scales measure areas of personality such as social image, intellectual stance, and interests. Also, three of the scales are validity scales which measure test-taking attitudes (i.e. fake good and fake bad) and the extent to which popular responses are recorded. In an effort to comply with the 1990 Americans with Disabilities Act, the CPI underwent another revision in 1996 (CPI 434). While this revision resulted in 28 items being deleted (now a total of 434 items), the 1987 scales and vectors were retained. Finally, a short form of the CPI was developed in 2002 (CPI 260).

The CPI was developed without a particular personality theory or theory of pathology in mind. Rather, the 1957 version of the CPI was developed using both an empirical and rational approach. Specifically, the items on the CPI were derived from a pool of 3,500 questions, each of which was posited to conceptually measure the construct the scales were intended to measure. The measure resulted in 468 items, 178 of which were identical to MMPI items, 35 were similar, and 255 were exclusive to the CPI. The questions were given to a sample group and subsequently accepted or rejected contingent upon the inter-item correlations. However, it is important to note that most of the CPI scales were not developed rationally; rather, they were derived through empirical criteria keying. Specifically, series of questions which had been derived rationally were administered to sample groups who had been previously assessed for characteristics the scales were initially intended to measure. For example, to be included in the sample group that was given the scale of Responsibility, friends and family would first rate the group member's degree of responsibility. The same process was used for the remaining scales and items that were found to discriminate between the criterion group and normal population were included in the scale.

After the initial scales were developed, items were subjected to cross-validation in order to determine the extent to which the construct being measured could be accurately evaluated. Among the 18 original scales, 13 used empirical criterion keying, four used the rational approach, and the final scale used a combination of the two techniques. The two new scales in the 1987 and 1996/2002 versions used empirical criterion keying to obtain and score items already in the CPI.

Similar to the MMPI, CPI scores are standardized using T-scores, which have a mean of 50 and standard deviation of 10. The original 1957 scales were standardized on a normative sample of 6,000 males and 7,000 females that spanned a wide range of demographic characteristics such as socio-economic status, age, and geographic location. Similarly, the 1996 version of the CPI was standardized on 3,000 participants from each sex selected from the CPI archives to be representative of the U.S. population across a wide array of variables.

To facilitate interpretation of the CPI, the 20 scales are organized so that they associate with the following four domains: observable interpersonal style and orientation (i.e. Social Presence), internal normative orientation and values (i.e. Responsibility), cognitive and intellectual functioning (i.e. Intellectual Efficiency), and role and personal style (i.e. Flexibility). These four domains facilitate interpretation of the CPI in that they help practitioners to organize specific information around the more general domains, as well as incorporate data from other assessments into the CPI. Also, easier interpretation is facilitated by the fact that higher values on the CPI scales represent more favorable qualities while lower values represent more unfavorable ones. The exception to this is the final scale (Femininity/Masculinity) which evaluates traditionally feminine and masculine traits. The three vector scales added by Gough to the 1987 version were organized based on factor analysis to evaluate extraversion-introversion, norm-favoring versus norm questioning, and the extent of self-realization.

The short and most recent version of the CPI (CPI 260) is composed of 260 items. Each scale was derived by taking items that most strongly correlated with the longer scales combined with the strongest correlations for external test behaviors. Furthermore, all items were evaluated for contemporary terminology, cross-cultural relevance, disability-relevant content, and tone. The short version resulted in retention of the original 20 scales as well as the three vector scales added by Gough. Four of the scales were renamed and the final revised scales were found to have strong correlations with the CPI 434 scales. The greatest advantage to the CPI 260 is that it only takes about 25 to 35 minutes to complete, whereas the longer version requires about 45 minutes to one hour to complete.

Psychometric Properties

The reliability and validity of the CPI have yielded favorable results compared to other personality inventories. The overall median reliability was .68 for the CPI 434 and .66 for the CPI 260. The test-retest reliability of the CPI 434 ranged from a low of .51 (Flexibility) to a high of .84 (Femininity/Masculinity). However, it should be noted that the test-retest interval was one year, which is a wide time range between test administrations. Internal consistency for the CPI ranged from a low of .43 (Femininity/Masculinity) to a high of .85 (Wellbeing). The overall median internal consistency was .76 for the CPI 434. Internal consistency for the CPI 260 ranged from a low of .39 (Communality) to a high of .87 (Dominance). Also, the correlations between the CPI 434 and the CPI 260 were favorable ranging from .81 to .97.

Factor analytic research has yielded a two-factor solution for the CPI (Internal Controls and Interpersonal Effectiveness), a five-factor solution for the 1996 revision (Ascendance, Dependability, Conventionality, Originality, and Masculinity/Femininity), and a four-factor solution for the CPI 260 (Interpersonal Effectiveness, Dependability, Originality, and Interpersonal Sensitivity). In a broad sense, the factor structure of the CPI suggests that higher scores indicate personal adjustment and lower scores suggest psychopathology. Also, the CPI has been reported to correlate with most of the Big Five factors of personality: Neuroticism, Extraversion, Agreeableness, Openness to Experience, and Conscientiousness.

While considering the psychometric properties of the CPI, it is important to note that the primary work conducted on validation has been predictive. As such, the CPI is less concerned with attractive psychometric properties of personality traits and more with the utility of the test in making accurate predictions. For example, people with high scores on certain scales are likely to be described in certain ways by those close to them. In this sense, the CPI centers on predicting the types of things individuals say or do when placed in various situations. Taken together, the CPI is not an instrument of traits, but a measure of the probability that someone might characterize the test-taker in a certain way. Many empirical studies have found adequate levels of predictive validity for the CPI.

Cultural Considerations

As previously noted, the CPI was developed using "folk norms" which are thought to have cross-cultural relevance. Such is one reason that the measure has been used in cross-national settings and has been translated into 40 languages. Studies in a diverse array of countries have supported the CPI's validity, even among countries that are relatively different from the United States (e.g. Japan, Taiwan, etc.). Further, cross-cultural research has found the CPI to yield factor structures similar to those found in the United States and has shown it to be useful in making accurate predictions across a variety of cultures (e.g. Greek, Swedish, and Norwegian).

However, research has also indicated that some scales on the CPI are more influenced by ethnicity than others. For example, when contrasted with European American males, African American males reported lower levels of extroversion, anxiety, and cynicism. But among females, scores yielded similar results. Another example of ethnic influence was shown with Native Americans. Specifically, when compared with European American men, Native American men reported lower scores of conventional tendencies and less sensitivity to violated norms. Thus, ethnic differences are an important cultural component to consider while administering and interpreting the CPI.

Although empirical research has shown the CPI to be useful in cross-cultural contexts, much remains unknown regarding the role other cultural variables may play. Variables such as race, socio-economic status, and other demographic variables are in need of further study to evaluate the ability of the CPI to predict certain behaviors in specific cultural contexts. Finally, although knowing that differences in CPI scores differ on some cultural variables is important, it is critical to understand why the scores are different. Future research on the CPI should investigate how CPI scores relate to various scales across cultural contexts, as well as the reason behind these differences.

See Also

Factor Analysis in Personality Research
Minnesota Multiphasic Personality Inventory (MMPI)
Reliability, Issues of
Validity, Issues of

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Dimensional Assessment of Personality Pathology (DAPP)

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The Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ) is used by clinicians to evaluate and treat personality disorders in adults, 18 years and older. It allows a clinician to create a dimensional personality profile that aids in creating a treatment plan for those who are experiencing a personality disorder, ranging from mild to severe trait issues. Creating personality profiles based on dimensions this way is also in alignment with the current criteria for diagnosing personality disorders put forth by the Diagnostic and Statistical Manual of Mental Disorders V (DSM-V). In addition to providing an overview of the basic components of a personality disorder, it also is measuring affect, cognition, and traits related to interpersonal interactions that could potentially impact one's psychological state (Livesley & Jackson, 2009).

The final report of the Dimensional Assessment of Personality Pathology-Basic Questionnaire provides a clinician with trait scores on 18 scales and also includes more specific information that is necessary for diagnosing and creating a plan for treatment. The 18 scales can be grouped into four factors: emotional dysregulation (measured by affective lability, anxiousness, cognitive dysregulation, identity problems, insecure attachment, oppositionality, submissiveness), dissocial behavior (measured by callousness, conduct problems, narcissism, rejection, and stimulus seeking), social avoidance (measured by intimacy problems, low affiliation, and restricted expression), and compulsiveness (measured by compulsivity). It also includes other dimensions, measured by self-harm and suspiciousness (Livesley & Jackson, 2009; Livesley & Larstone, 2008).

This assessment takes approximately 35 minutes to 50 minutes to administer through an online system. The Dimensional Assessment of Personality Pathology-Basic Questionnaire includes 290 items that individuals would respond to on a 5-point Likert scale that ranges from 1 meaning strongly disagree to 5 meaning strongly agree. A report of the data is generated upon completion of the assessment and includes both raw and standardized scores that are compared to general and clinical populations, graphs of the results, details about the scales, and indices. Lastly, the Dimensional Assessment of Personality Pathology-Basic

Questionnaire also includes a validity scale that aims to ascertain if a person is answering based on social desirability or impression management (Livesley & Jackson, 2009).

The Dimensional Assessment of Personality Pathology-Basic Questionnaire has been established to be a valid and reliable measure of personality pathology. In both general and clinical samples, internal consistency reliabilities for the 18 scales ranged from .84 to .95. Furthermore, the Dimensional Assessment of Personality Pathology-Basic Questionnaire was found to have convergent validity with similar measures of personality pathology, assessments of normal personality, self-report measures of personality, and interviews that rated personality (Livesley & Jackson, 2009).

The Dimensional Assessment of Personality Pathology-Basic Questionnaire has allowed clinicians to clearly define and treat personality disorders, but has done so with more precision since this assessment provides greater distinctions among personality disorders. Therefore, it allows clinicians to clearly identify and diagnose a personality disorder that could have many overlapping symptoms with another personality disorder. By having more confidence in the diagnosis, people receiving these results about themselves will gain greater understanding of their past behaviors and can predict, and hopefully fix, any issues in the future they may have. In addition to diagnosing personality disorders, the Dimensional Assessment of Personality Pathology-Basic Questionnaire has had success in assessing anxiety disorders, mood disorders, eating disorders, substance use disorders, and somatization disorders (Livesley & Jackson, 2009).

The DAPP-SF is a short form version of the Dimensional Assessment of Personality Pathology-Basic Questionnaire. The DAPP-SF includes 136 of the original 290 items of the DAPP-BQ. Based on studies with community samples, the DAPP-SF retained the same factor structure as the DAPP-BQ and was found to be reliable. Additionally, the scales of the basic questionnaire and the short form version were found to correlate highly with each other (van Kampen, de Beurs, & Andrea, 2008).

See Also

Validity, Issues of

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Eysenck Personality Questionnaire-Revised

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Eysenck's PEN Model of Personality

Before describing the Eysenck Personality Questionnaire-Revised (EPQ-R), a brief understanding of the theory in which it is based is required. Eysenck proposed that a theory of personality must be based on more than just heuristic traits or psychometric approaches, but should be based in a general theory and provide a nomological network that permits for hypothesis testing. To this extent, Eysenck theorized that human temperament could be captured in a system involving four levels. The first level involved singly occurring acts or cognitions, which could involve talking to a friend on a particular occasion. Behaviors occurring on this first level are highly changeable across time and situation. The second level was composed of habitual acts or cognitions, which could involve speaking with friends on multiple occasions. The third level involved "traits" like sociability and one's ability to communicate and interact with friends, which were defined as significant intercorrelations between different habitual behaviors. The final level consisted of "superfactors" or personality types, like extraversion, which involved substantial intercorrelations between traits. These personality types are highly stable, and unlikely to change.

Within this theory, Eysenck identified three orthogonal personality types: Psychoticism, Extraversion, and Neuroticism (PEN). Psychoticism was defined by traits which included aggression, coldness, egocentrism, impulsivity, lack of empathy, tough-mindedness, and being antisocial. Extraversion was defined by the following traits: sociable, lively, active, assertive, sensation-seeking, carefree, dominant, and venturesome. Finally, neuroticism was defined by the following traits: anxious, depressed, guilt feelings, low self-esteem, tense, irrational, shy, moody, and emotional. According to Eysenck, these personality types were more than just behavioral responses, but were based on an individual's physiological and biochemical structure. Furthermore, these types would be

consistent cross-culturally and ethnically. Together, these factors were the foundation of Eysenck's PEN model of personality.

History and Development of the Eysenck Personality Questionnaire

The EPQ-R has a long history of development and refinement that mirrored the increased sophistication of the PEN model. Originally published as the Maudsley Medical Questionnaire in 1952, it contained 40 yes/no items, and simply focused on neuroticism as a factor (i.e. 20 or more "Yes" responses indicated a higher than average neuroticism factor). In 1959, a 48-item assessment, the Maudsley Personality Inventory, was published. This was the first assessment to assess for both the E and N scales. In 1968, the Eysenck Personality Inventory (EPI) expanded the scales, and the assessment involved 57 yes/no items that captured the E and N scales. Both the E and N scales included 24 questions, and a Lie (L) scale that assessed an individual's attempt to present themselves in a socially desirable way made up the remaining nine questions.

Individuals' scores on the EPI were plotted on a circular graph divided into four quadrants with Extravert/Introvert constituting one end of the plot and Neurotic/Stable constituting the other end. Scores closer to the outside of the circle indicated a more marked personality trait. A score of five or higher on the L scale indicated that participants were presenting themselves in a more favorable light, and may not have been honest while taking the EPI.

The P scale was not included within the assessments until 1975, when the 90-item Eysenck Personality Questionnaire (EPQ) was published. However, criticisms of poor psychometric properties of the P scale quickly arose. Specifically, criticisms of the P scale in the EPQ consisted of low internal reliability (although test-retest reliability was within an acceptable range), low range of scoring, and grossly skewed distribution of the scores.

The Eysenck Personality Questionnaire-Revised (EPQ-R) was developed as a response to criticisms concerning the psychometric properties of the P scale in the EPQ. The new scale consisted of 100 items in a yes/no format: 32 items for the P scale, 23 items for the E scale, 24 items for the N scale, and 21 items as a L scale. The administration time using the EPQ-R is around 20–35 minutes, and it can be scored by hand or through test agencies.

As can be noted, each new version of the EPQ was associated with an increase in the total number of items. This expansion can be accounted for by the additions of new dimensions (the P and L scales), and the psychometric principle that greater length enhances reliability, which was particularly important given the psychometric issues of the P scale. However, given this increase in length, some have expressed concerns with the utility of the assessment in research and clinical settings.

In response to these concerns over length, the EPQ-R Short Scale (EPQ-RS) was created. The EPQ-RS consists of 48 yes/no items, and includes 12 items for each of the P, E, N, and L scales. This version takes about half the time to administer (10–25 minutes) and can be easily scored by hand (usually within one minute). However, this reduction in total questions to reduce the time needed to administer and score the assessment has led the EPQ-RS to psychometric issues, particularly with the P scale.

Psychometric Properties

Validity of the P, E, and N scales has been discussed and examined for over 50 years. Originally derived from item and factor analyses from other personality inventories, the three scales are considered to have high construct validity (i.e. they are highly correlated with the factor they are said to measure and not with other factors). An emphasis on the validity of the superfactors in the PEN theory has been examined throughout its history.

Empirical findings in regard to the psychometric properties of the EPQ-R indicate an improvement compared with previous versions. In particular, the internal reliability, range of scoring, and distribution of the P scale are improved using the EPQ-R. Internal consistency reliability estimates range from .73 to .81 for P, 0.85 to .90 for E, and 0.85 to 0.88 for N. These reliability estimates have proven to be consistent across numerous studies.

Factor analytic studies have indicated a three to four factor structure of the EPQ-R, depending on whether or not the L scale questions are included. Multiple studies, using multiple methods of factor analyses (e.g. alpha factoring, generalized least squares, and maximum-likelihood method), confirm the theoretical P, E, and N superfactor structure of the EPQ-R. The total variance captured by these factors has ranged from 66% to 75% of the data.

Cultural Considerations

Cultural utility has been a key research focus of the EPQ. It was hypothesized that Eysenck's theory of personality traits, particularly the P, E, and N scales, would be universal across cultures given that its basis is founded on the physiological and biochemical structure of an individual and not just a set of arbitrary behaviors. To test this hypothesis, the EPQ has been translated into multiple languages, and has been used in research across many countries and cultures.

The primary methodology used in testing the universality of the EPQ scales has been the use of exploratory factor analysis (EFA). In a study looking at datasets from 34 different countries, data indicated that the four factors (P, E, N, and L) were strongly replicable across all 34 countries, and that there was a significant degree of factorial similarity in comparison to the U.K. sample that was used as the target population in the analyses. This study, along with others, provides evidence that the EPQ and the theory on which it is based may have utility across multiple cultures.

The EPQ-RS has also been tested across multiple countries and cultures (e.g. German, Greek, Hindu). Consistently, the EPQ-RS has been found to have satisfactory psychometric properties (e.g. internal reliability, test-retest reliability, and inter-item correlations) for the E, N, and L scales. However, the data for the P scale has consistently yielded poor psychometric properties. The poor psychometric properties of the P scale may be a function of the reduced number of questions used in the short form.

Conclusion

Taken together, the EPQ-R is a personality assessment that was created from a theory of personality based on decades of empirical research. While it has some limitations, particularly the psychometric properties of the P scale, it is a widely used and well-regarded measure of

typical personality. It is a measure that is highly versatile and can be used in both the research and clinical setting across multiple cultures and countries. In its various forms (i.e. EPQ-R/EPQ-RS), it can meet the demands of nearly any setting, and provide a well-established assessment of personality.

See Also

Factor Analysis in Personality Research
Hans Eysenck
Minnesota Multiphasic Personality Inventory (MMPI)

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Millon Clinical Multiaxial Inventory (MCMI)

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The History of the MCMI-IV

Millon asserted that there are four elements of personology: theory, taxonomy, measurement, and intervention. He explained his ideas in detail in his book *Modern Psychopathology*, which was published in 1969. Through the publication of his text, Millon inspired a reconceptualization of the very nature of personality. His theory eventually generated a classification of personality prototypes and personality disorders.

In 1977, Millon published the first edition of the Millon Clinical Multiaxial Inventory. The original purpose of that test was to aid clinicians in identifying and treating disordered personality. In line with Loevinger's test construction and validation strategy, Millon first developed test items based on how well their content aligned with his theory specifically, rather than the professional nomenclature of the day. He developed a pool of 1,100 test items, which he split in half into two equivalent forms and administered to clinical patients and clinicians to test for internal validity. From the original pool, a final set of 175 items was established and validated.

Within his theory, Millon described three polarity structures that align with the identified evolutionary processes, which he viewed as "universal motivating aims." These aims include pain-pleasure (survival) polarity, active-passive (adaptive) polarity, and self-other (replication) polarity. From one's status on each of these polarities, Millon purported, conclusions may be drawn regarding one's functional (F) and structural (S) domains of personality, which are expressed via traits or disorders. These polarities and the balance or predilection toward one polarity describe the motivating factors that cause the development of an individual's personality function. The assessment scales provided within the MCMI are an operational measure of the resulting enduring personality characteristics. The MCMI-I contained 11 personality scales and nine clinical syndrome scales. In 1987, the MCMI was revised to better reflect the content of the Diagnostic and Statistical Manual (DSM-III-R). The MCMI-II consisted of 13 personality scales, four validity scales, and nine clinical syndrome scales.

Millon conceptualized his instruments as fluid, indicating a desire to revise them whenever progress within the field or a development in theory occurred. In the 1980s and 1990s, a resurgence in the scientific interest pertaining to personality transpired. Great growth occurred within the International Society for the Study of Personality Disorders, as did the popularity of the *Journal of Personality*. Additionally, hundreds of empirical journal articles and book chapters regarding the subjects of personality development and functioning resulted. Simultaneously, the fourth edition of the Diagnostic and Statistical Manual (DSM-IV) was developed as well. Collectively, these events inspired Millon to revise the MCMI again. The MCMI-III, which was published in 1994, eliminated specific personality scales and introduced two scales: Clinical Personality Pattern (Depressive) and Clinical Syndrome (Post-Traumatic Stress Disorder). Additionally, 95 items from the MCMI-II were replaced by 95 newly-developed MCMI-III items, which were said to increase the correspondence in nomenclature between the MCMI-III and the DSM-IV criteria as well as better reflect recent generalization studies. Finally, items were added to strengthen the interpretive report information regarding child abuse, anorexia, and bulimia.

MCMI-IV

Released in the fall of 2015, the MCMI-IV is the most recent edition of the Millon Personality Inventory. The MCMI-IV is an objective personality assessment instrument that aligns closely with the DSM-5 classification system. It is a 195-item test in a true-false self-report assessment, which may be completed in 25 to 30 minutes. Scores are normative for an adult inpatient and outpatient sample. As such, it is to be administered in a clinical setting, and results associated with those within the general population (a non-clinical setting) may not be valid.

The MCMI-IV differs from previous versions of the assessment in several ways. First, the MCMI-IV attends to the individual's response patterns across domains to provide a more holistic description of his or her personality style. The MCMI-IV identifies 15 personality prototype spectra with each prototype existing on a continuum from adaptive to maladaptive. As a consequence, assessment results not only highlight psychopathology, but now also serve to describe aspects of personality. This places any assessed syndrome in the context of an individual's personality styles or disorder. Furthermore, examining scores across the different domains can assist the clinician in forming treatment strategies by facilitating understanding of underlying motivations, allowing for the targeting of specific areas, and identifying which techniques to use for therapy.

Second, the terminology used in the MCMI-IV was updated to better reflect the nomenclature associated with the DSM-5, which was released in 2013. For example, the *thought disorder scale* is now the *schizophrenic spectrum*, reflecting a greater emphasis on the complete DSM criteria for schizophrenia, which not only highlights cognitive abnormality, but also addresses social withdrawal, emotional discontrol, and behavioral abnormalities. Similarly, the *depressive personality scale* was renamed the *melancholic spectrum*. This change differentiates the personality spectrum from the clinical syndrome previously described as dysthymia in the DSM-IV-TR, which is known as persistent depression and

chronic major depression in the DSM-5. The renaming of the personality scale to melancholic spectrum also allows for the expression of the full range of the personality characteristics from mild pessimism to the abnormal level (forlorn), to the severely dysfunctional melancholic level.

Another change in the assessment tool is the inclusion of updated test items. The MCMI-IV adds new response categories to identify pertinent information for secondary screening or referrals. There are response items for Adult ADHD, autism spectrum, violence potential, prescription drug abuse, self-injurious behavior, tendency toward vengeful behavior, and traumatic brain injury. Additionally, since the release of the MCMI-III, Millon developed an additional personality spectrum called the *turbulent spectrum*. At one end of this spectrum, the terms 'ebullient' and 'exuberant' denote a disposition toward high spirits and joyfulness with a desire to engage with the world. On the more extreme end of the spectrum, this personality spectrum shifts from the range of joyous ebullience through the more scattered exuberance, to the level of dysfunction displayed in the turbulent end of the spectrum, which is consistent with tempestuousness and frenetic loss of control. There are several items within the MCMI-IV that reflect this new spectrum.

Scoring

The MCMI-IV scoring can be web-based, software, or completed via the mail. Results may be presented in either an interpretive or a profile report. The interpretive reports align with the DSM-5 and the ICD-10 with the test results designed to integrate with therapeutic practice and the assessment results linked to treatment goals. The interpretive procedure is to first check validity scales, which serve to check for distortions in responses. Elevated scores on the desirability or debasement index can reveal a bias affecting the clinical and syndrome scale scores. The next step is to check for positive responses on noteworthy items, which are the red flags reflecting critical information such as possible traumatic brain injury or violence. Next, the personality scales are reviewed with emphasis on scores in the severe range and then the Grossman facet scales, followed by the clinical syndrome scales. Finally, the data is integrated for the overall profile in the context of presenting issues.

Scores are Base Rate scores rather than T-scores, meaning they are based on the prevalence rate of a disorder and they describe where a person is on a spectrum. In this way, the MCMI differs from other personality assessment tools. The MCMI Base Rate scores compare raw scores of the patient to scores of other patients, unlike other personality tests, which compare scores to non-clinical populations. A score of 60–74 indicates normal style, likely with some traits which may be problematic for the individual. A score of 75–84 indicates an abnormal trait level with more defined dysfunction possible while a score of 85 or more indicates a clinical disorder and likely an impairing level syndrome.

Results

Beyond the basic personality architecture measured in the personality prototype spectra scores, Millon's evolutionary theory specifies eight domains, four functional and four structural, representing the expression of personality in facets aligned with traditional psychological schools of thought. From these eight domains arise the Grossman Facet Scales,

which measure the functional domains: expressive emotion, interpersonal conduct, cognitive style, intrapsychic dynamics, and the structural domains: self-image; intrapsychic content; intrapsychic architecture, and mood/temperament.

While the acute clinical disorders are not derived from Millon's theory, they may be confirmed via the MCMI. Within this assessment, there are ten clinical scales, which align with the diagnostic changes reflected in the DSM-5 and the ICD-10. Three of the scales reflect severe clinical syndromes (noted to have a more psychotic component), including SS schizophrenic spectrum (previously thought disorder), CC Major Depression, and PP Delusional. The remaining clinical scales, each reflecting a separate syndrome, are: (A) Generalized Anxiety, (H) Somatic Symptom, (N) Bipolar Spectrum, (D) Persistent Depression, (B) Alcohol use, (T) Drug use and (R) Post-Traumatic Stress.

The personality scales derive directly from Millon's theory of personality. The scales describe each personality pattern on a broad range from normal to abnormal to clinical disorder. The scales identify and measure characteristics of 15 personality styles/disorders:

- Retiring/schizoid,
- Eccentric/schizotypal,
- Shy/avoidant,
- Pessimistic/melancholic,
- Cooperative/dependent,
- Sociable/histrionic,
- Exuberant/turbulent
- Confident/narcissistic,
- Suspicious/paranoid,
- Nonconforming/antisocial,
- Assertive/sadistic,
- Capricious/borderline,
- Conscientious/compulsive,
- Skeptical/negativistic,
- Aggrieved/masochistic.

An example of a personality spectrum as identified in the MCMI-IV is the "AASchd " spectrum, which describes the Apathetic normal style/Asocial abnormal type/Schizoid clinical disorder spectrum. This spectrum demonstrates the MCMI-IV's ability to capture the full range of personality characteristics from normal to abnormal through the severe level of the clinical disorder. There are three spectrums, which indicate severe personality pathology: ESSschizoph – eccentric/schizotypal/schizophrenic, UBCycloph – unstable/ borderline/cyclophrenic, and MPParaph – mistrustful/paranoid/paraphrenic. These three spectrums are the most severe of the personality disorders and the labels reflect the diagnostic system changes in the DSM-5.

Validity and the Modifying Indices

The MCMI-IV has a validity index consisting of three items that detect random or deviant responses. If two or more of these items are marked true, then the test is invalidated. In addition, there are three modifying indices, the disclosure index (scale X), desirability

index (scale Y), and debasement index (scale Z). The disclosure index measures whether an individual's responses are candid and open. The desirability index measures the degree to which the responder is attempting to appear favorable and the debasement index measures whether the responder is attempting to appear emotionally unwell. When reviewing assessment results, these scores provide an initial validity check for the entire assessment. Excessive omissions and double marked responses will also invalidate the instrument.

Strengths and Weaknesses

Unlike many other personality assessments, each edition of the MCMI is anchored in theory and its results are validated by numerous empirical studies. Another strength associated with the MCMI is its brevity. With only 175 items, the MCMI is much shorter than most personality assessments, allowing patients to complete it in a timely manner and thus minimizing the likelihood of fatigue. Given that it was developed for those with an eighth-grade reading level, most patients find the assessment manageable, which also helps to reduce patient resistance. Despite its length, the MCMI still provides a large quantity of information regarding a wide range of clinically relevant behavior. Finally, the MCMI-IV reflects the criteria and vocabulary utilized in both the DSM-5 and ICD-10 thus linking theory into current systems of treatment planning and psychotherapy.

A drawback of the MCMI is that Millon has produced multiple editions of the test in a relatively short period, resulting in a lack of current research on the most recent version. The MCMI-IV incorporates dramatic changes and these changes may affect the effectiveness of the assessment tool for clinical use. Another complaint is that the scoring for the MCMI is overly complex beyond what is necessary for useful results.

See Also

DSM-5 Emotional Intelligence, Correlates of

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Minnesota Multiphasic Personality Inventory (MMPI)

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Introduction

The Minnesota Multiphasic Personality Inventory (MMPI) is a widely used psychological test that aids clinicians in assessing personality traits, detecting and diagnosing psychopathology, and selecting appropriate treatment methods. Multiple forms of the MMPI have been adapted from the original version for use with various populations (i.e. adolescents, adults, ethnic groups) in a variety of settings (i.e. personnel screening, correctional facilities, inpatient mental health settings). Additionally, the MMPI is often used in legal proceedings to determine an individual's competence to stand trial or as evidence during the trial.

Historical Overview

The original version of the MMPI was published in 1942 by clinical psychologist Starke R. Hathaway and neuropsychiatrist J. Charnley McKinley in an effort to provide a routine assessment for psychopathology in adult patients at the University of Minnesota Hospital. Hathaway and McKinley sought to create a measure that was more efficient than and would strengthen previous self-report personality inventories. Previous inventories were criticized for (1) failing to validate how individuals actually responded to items, but rather focusing on the researcher's anticipated response; (2) using items that were too transparent and whose intent was easily understood by respondents; and (3) failing to assess whether or not individuals had manipulated their responses (Weiner & Greene, 2017). Hathaway and McKinley were also interested in an instrument that could be used to assess an individual's symptomology over time, by being administered at multiple points throughout the treatment process (Gotts & Knudsen, 2005). Ultimately, Hathaway and McKinley wanted to create a single, empirically based inventory that would allow for the assessment of wide range of significant behaviors, as opposed to multiple, highly specific independent tests.

When developing scale items for the MMPI, Hathaway and McKinley relied exclusively on an empirical approach without a theoretical rationale. Initially, the frequency of "true or false" responses of criterion groups was compared to those of normative groups. If the frequency response difference for the two groups being compared was at least twice the standard error of the proportion of true/false responses, the item was tentatively selected (Weiner & Greene, 2017). Items were then eliminated if the frequency of the criterion group's response was less than 10% or responses to an item appeared to reflect a bias in regard to marital status or socio-economic status. Therefore, a person's score reflected how many items they answered in the same manner as the criterion group. This type of scoring removed prior assumption regarding the relationship between the individual's behavior and their self-report response.

The original version of the MMPI contained a total of 550 items and was composed of 10 clinical scales and four validity scales. The first 10 rows of Table 1 present a summary of the 10 clinical scales, which were displayed as numbers and abbreviations (see left column of Table 1), by including their clinical manifestation (see center column of Table 1) and a brief description corresponding to the characteristic features assessed by the clinical scale (see right column of Table 1): scale 1 (Hs) measured for hypochondriasis (i.e. the individual's level of concern and preoccupation with their bodily symptoms, overall health, and complaints), scale 2 (D) measured for depression (i.e. the respondent's level of happiness and symptoms of clinical depression including poor morale, dissatisfaction with life, and lack of hope), scale 3 (Hy) measured for hysteria (i.e. the respondent's level of emotional wellness, vulnerabilities, neuroticism, cynicism, and shyness), scale 4 (Pd) measured for psychopathic deviate (i.e. level of maturity, social interaction, response to authority, level of alienation, aggressiveness, and social maladjustment), scale 5 (Mf) measured for masculinity-femininity (i.e. interest in or conformity to stereotypical gender roles including vocations, hobbies, preferences, and sensitivities), scale 6 (Pa) measured paranoia (i.e. respondent's level of sensitivity or suspiciousness, and moral self-righteousness), scale 7 (Pt) measured for psychasthenia (i.e. respondent's level of compulsiveness, abnormal fears, anxiety, worry, self-criticism, and difficulty concentrating), scale 8 (Sc) measured for schizophrenia (i.e. the respondent's bizarre thoughts, level of disorganized thought, impulse control, social and familial relationships, and disturbing questions of self-worth and identity), scale 9 (Ma) measured hypomania (i.e. respondent's degree of excitement, level of mood stability, thought and behavior patterns, and overactivity), and finally, scale 0 (Si) measured for social introversion (i.e. the respondent's level of introversion vs. extroversion and limited social skills) (Ball, 1962).

In addition to the clinical scales, the original version of the MMPI contained four validity scales which were designed to measure the respondent's test-taking ability. The last four rows of Table 1 present a summary of the four validity scales, which were displayed as abbreviations (see left column of Table 1), by including their clinical manifestation (see center column of Table 1) and a brief description corresponding to the characteristic features assessed by the validity scale (see right column of Table 1). The (?) or "Cannot Say" scale assessed for excessive omission, which hindered meaningful interpretation of the inventory. The (L) scale or lie scale was used to determine the degree to which the respondent was trying to paint him or herself in an unusually positive light. Therefore, a high (L) score indicated that the respondent was "faking good" (Ball, 1962). Furthermore, the (F) scale was

Table 1 Original MMPI Scales

Scale No. Abb.	Clinical manifestation or description	Description of the characteristic features assessed by the scale (number of items in scale)
1 Hs	Hypochondriasis	Level of concern and preoccupation with one's bodily symptoms, health or health issues (32)
2 D	Depression	Level of happiness and presence of depressive symptoms (57)
3 Hy	Hysteria	Level of emotional wellness, awareness of problems, vulnerabilities (60)
4 Pd	Psychopathic deviate	Level of maturity, social interactions, aggressiveness, conflict (50)
5 Mf	Masculinity-Femininity	Interest in or conformity to gender stereotypes (56)
6 Pa	Paranoia	Level of sensitivity or suspiciousness (40)
7 Pt	Psychasthenia	Level of compulsiveness, feelings of fear and/or inferiority, worry (48)
8 Sc	Schizophrenia	Level of disorganized thought, social and familial relationships, thoughts and perceptions (78)
9 Ma	Hypomania	Level of mood stability, thought and behavioral patterns, degree of excitement (46)
0 Si	Social introversion	Level of introversion or extroversion, social skills (69)
?	Cannot say scale	Number of omitted responses
L	Lie scale	Degree to which one attempted to "fake good"
F	F Scale	Degree to which one attempted to "fake bad"
K	Correction scale	Measure of test-taking attitudes and dissimulation

developed to measure the opposite, the degree to which the respondent was attempting to paint him or herself in an unusually negative light. A high (F) score indicated that the respondent was "faking bad" (Ball, 1962). Finally, the (K) scale or correction scale was used to provide a measure of test-taking attitudes and recognize dissimulation. Respondents were given the test individually or as groups and were asked to respond in a true/false fashion. Standard scores were derived for the 10 clinical scales of the original MMPI. The normative population responded with responses ranging from 45 to 54, and are therefore considered non-elevated responses (Ball, 1962). A score above 70 would be considered indicative of pathology, as it is two standard deviations above the mean of the normative adult population (Ball, 1962).

Changes to the MMPI Over Time

As use of the MMPI increased and cultural norms shifted over decades, the need for revisions became apparent. The first revision of the MMPI occurred in the 1980s and resulted in publication of the MMPI-2 in 1989. In 1992, the MMPI-A (Adolescent) was published in

an effort to construct scales that were specific to the adolescent population. Finally, the newest form of the MMPI, the MMPI-2-RF (Restructured Form), was published in 2008 in an effort to revise scale items that were problematic psychometrically due to scale heterogeneity and excessively high scale intercorrelations (University of Minnesota Press, 2015). Table 2 provides an overview comparison of the MMPI, MMPI-2, MMPI-A, and MMPI-2-RF in terms of authors, date published, age range, reading level, administration formats, completion time, number of items, response format, scales, and norms. Table 3 provides a

Table 2 Overview Comparison of MMPI-2, MMPI-A, MMPI-2-RF

	MMPI	MMPI-2	MMPI-A	MMPI-2-RF
Authors	Hathaway & McKinley	Butcher, Graham, Ben-Porath, Tellegen, Dahlstrom, & Kaemmer	Butcher, Williams, Graham, Archer, Tellegen, Ben-Porath, & Kaemmer	Ben-Porath & Tellegen
Published	1942	1989	1992	2008
Age range	16 yrs and older	18 yrs and older	14–18 yrs old	18 yrs and older
Reading level	5th grade	5th grade	5th grade	5th grade
Administration formats	Paper & pencil	Online, computer, CD, paper & pencil	Online, computer, CD, paper & pencil	Online, computer, CD, paper & pencil
Completion time		60–90 minutes	60 minutes	35–50 minutes
Number of items	550 items	567 items	478 items	338 items
Response format	T/F format	T/F format	T/F format	T/F format
Scales	10 clinical and 4 validity scales	10 validity indicators, 10 clinical scales, 15 content scales, 20 content component scales, 5 PSY-5, 9 restructured clinical, 15 supplementary scales, and 36 subscales	8 validity indicators, 10 clinical scales, 31 clinical subscales, 47 content scales, 6 supplementary scales and 5 PSY-5 scales	10 validity indicators, 3 higher-order scales, 9 restructured clinical scales, 5 somatic/cognitive scales, 9 internalizing scales, 4 externalizing scales, and 5 PSY-5 scales
Norms	Males and females over the age of 16 in the late 1930s and early 1940s	1,138 males and 1,462 females ages 18 to 80 from various, diverse regions of the U.S.	1,620 adolescents (805 boys/ 815 girls) between the ages of 14 to 18 from various, diverse regions of the U.S.	2,276 men and women ages 18 to 80 from various, diverse regions of the U.S.

* Adapted from Butcher, 2017; Weiner & Green, 2017; Ball, 1962.

Table 3 Comparison of MMPI-2, MMPI-2-RF, and MMPI-A Scales

Scale	Description	MMPI-2	MMPI-2-RF	MMPI-A
Clinical scales				
1 (Hs)	Hypochondriasis	✓		✓
2 (D)	Depression	✓		✓
3 (Hy)	Hysteria	✓		✓
4 (Pd)	Psychopathic deviate	✓		✓
5 (Mf)	Masculinity-femininity	✓		✓
6 (Pa)	Paranoia	✓		✓
7 (Pt)	Psychasthenia	✓		✓
8 (Sc)	Schizophrenia	✓		✓
9 (Ma)	Hypomania	✓		✓
0 (Si)	Social introversion	✓		✓
Restructured clinical scales				
RCd	Demoralization	✓	✓	
RC1som	Somatization	✓	✓	
RC2lpe	Low positive emotionality	✓	✓	
RC3cyn	Cynicism	✓	✓	
RC4asb	Antisocial behavior	✓	✓	
RC6per	Persecutory ideas	✓	✓	
RC7dne	Dysfunctional negative emotion	✓	✓	
RC8abx	Aberrant experiences	✓	✓	
RC9hpm	Hypomanic activation	✓	✓	
Harris-Lingoes subscales				
D1	Subjective depression	✓		✓
D2	Psychomotor retardation	✓		✓
D3	Physical malfunctioning	✓		✓
D4	Mental dullness	✓		✓
D5	Brooding	✓		✓
Hy1	Denial of social anxiety	✓		✓
Hy2	Need for affection	✓		✓
Hy3	Lassitude-malaise	✓		✓
Hy4	Somatic complaints	✓		✓
Hy5	Inhibition of aggression	✓		✓
Pd1	Familial discord	✓		✓
Pd2	Authority problems	✓		✓
Pd3	Social imperturbability	✓		✓
Pd4	Social alienation	✓		✓

(*Continued*)

Table 3 (Continued)

Scale	Description	MMPI-2	MMPI-2-RF	MMPI-A
Pd5	Self-alienation	✓		✓
Pa1	Persecutory ideas	✓		✓
Pa2	Poignancy	✓		✓
Pa3	Naiveté	✓		✓
Sc1	Social alienation	✓		✓
Sc2	Emotional alienation	✓		✓
Sc3	Lack of ego mastery-cognitive	✓		✓
Sc4	Lack of ego mastery-conative	✓		✓
Sc5	Lack of ego mastery-defective inhibition	✓		✓
Sc6	Bizarre sensory experiences	✓		✓
Ma1	Amorality	✓		✓
Ma2	Psychomotor acceleration	✓		✓
Ma3	Imperturbability	✓		✓
Ma4	Ego inflation	✓		✓
Social introversion subscales				
Si1	Shyness/Self-consciousness	✓		✓
Si2	Social avoidance	✓		✓
Si3	Alienation – self and others	✓		✓
Content scales				
ANX	Anxiety	✓		√$_A$
FRS	Fear	✓		
OBS	Obsessions	✓		√$_A$
DEP	Depression	✓		√$_A$
HEA	Health concerns	✓		√$_A$
BIZ	Bizarre mentation	✓		√$_A$
ANG	Anger	✓		√$_A$
CYN	Cynicism	✓		√$_A$
ASP	Antisocial practices	✓		
ALN	Alienation			√$_A$
CON	Conduct problems			√$_A$
TPA	Type A	✓		
LSE	Low self-esteem	✓		√$_A$
LAS	Low aspirations			√$_A$
SOD	Social discomfort	✓		√$_A$
FAM	Family problems	✓		√$_A$

Table 3 (Continued)

Scale	Description	MMPI-2	MMPI-2-RF	MMPI-A
WRK	Work interference	✓		
SCH	School problems			√$_A$
TRT	Negative treatment indicators	✓		√$_A$
Content component scales				
FRS1	Generalized fearfulness	✓		
FRS2	Multiple fear	✓		
Dep1	Lack of drive	✓		√$_A$
Dep2	Dysphoria	✓		√$_A$
Dep3	Self-deprecation	✓		√$_A$
Dep4	Suicidal ideation	✓		√$_A$
Hea1	Gastrointestinal symptoms	✓		√$_A$
Hea2	Neurological symptoms	✓		√$_A$
Hea3	General health concerns	✓		√$_A$
Aln1	Misunderstood			√$_A$
Aln2	Social isolation			√$_A$
Aln3	Interpersonal skepticism			√$_A$
Biz1	Psychotic symptomology	✓		√$_A$
Biz2	Paranoid ideation	✓		√$_A$
Ang1	Explosive behavior	✓		√$_A$
Ang2	Irritability	✓		√$_A$
Cyn1	Misanthropic beliefs	✓		√$_A$
Cyn2	Interpersonal suspiciousness	✓		√$_A$
ASP1	Antisocial attitudes	✓		
ASP2	Antisocial behavior	✓		
TPA1	Impatience	✓		
TPA2	Competitive drive	✓		
Con1	Acting-out behaviors			√$_A$
Con2	Antisocial attitudes			√$_A$
Con3	Negative peer group influence			√$_A$
LSE1	Self-doubt			√$_A$
LSE2	Interpersonal submissiveness			√$_A$
Las1	Low achievement orientation			√$_A$
Las2	Lack of initiative			√$_A$
Sod1	Introversion	✓		√$_A$
Sod2	Shyness	✓		√$_A$

(*Continued*)

Table 3 (Continued)

Scale	Description	MMPI-2	MMPI-2-RF	MMPI-A
Fam1	Family discord	✓		$\sqrt{}_A$
Fam2	Familial alienation	✓		$\sqrt{}_A$
Sch1	School conduct problems			$\sqrt{}_A$
Sch2	Negative attitudes			$\sqrt{}_A$
Trt1	Low motivation	✓		$\sqrt{}_A$
Trt2	Inability to disclose	✓		$\sqrt{}_A$
PSY-5 scales				
AGGR	Aggression	✓	✓	✓
PSYC	Psychoticism	✓	✓	✓
DISC	Disconstraint	✓	✓	✓
NEGE	Negative emotionality	✓	✓	✓
INTR	Introversion/low positive emotionality	✓	✓	✓
Supplementary scales				
Broad personality characteristics				
A	Anxiety	✓		✓
R	Repression	✓		✓
Es	Ego strength	✓		
Do	Dominance	✓		
Re	Social responsibility	✓		
IMM	Immaturity			✓
Generalized emotional distress				
Mt	College maladjustment	✓		
PK	PTSD- Keane	✓		
MDS	Marital distress	✓		
Behavioral dyscontrol				
Ho	Hostility	✓		
O-H	Over-controlled hostility	✓		
MAC-R	MacAndrew alcoholism-revised	✓		✓
ACK	Alcohol/drug problem acknowledgment			✓
PRO	Alcohol/drug problem proneness			✓
AAS	Addiction admission	✓		
APS	Addiction potential	✓		
Gender role				
GF	Gender role-feminine	✓		
GM	Gender role-masculine	✓		
Higher-order (H-O) scales				

Table 3 (Continued)

Scale	Description	MMPI-2	MMPI-2-RF	MMPI-A
EID	Emotional/internalizing dysfunction		✓	
THD	Thought dysfunction		✓	
BXD	Behavioral/externalizing dysfunction		✓	
Somatic/cognitive scales				
MLS	Malaise		✓	
GIC	Gastrointestinal complaints		✓	
HPC	Head pain complaints		✓	
NUC	Neurological complaints		✓	
COG	Cognitive complaints		✓	
Internalizing scales				
SUI	Suicidal/death ideation		✓	
HLP	Helplessness/hopelessness		✓	
SFD	Self-doubt		✓	
NFC	Inefficacy		✓	
STW	Stress/worry		✓	
AXY	Anxiety		✓	
ANP	Anger proneness		✓	
BRF	Behavior-restricting fears		✓	
MSF	Multiple specific fears		✓	
Externalizing scales				
JCP	Juvenile conduct problems		✓	
SUB	Substance abuse		✓	
AGG	Aggression		✓	
ACT	Activation		✓	
Interpersonal scales				
FML	Family problems		✓	
IPP	Interpersonal passivity		✓	
SAV	Social avoidance		✓	
SHY	Shyness		✓	
DSF	Disaffiliativeness		✓	
Interest scales				
AES	Aesthetic-literary interests		✓	
MEC	Mechanical-physical interests		✓	
Superlative self-presentation subscales				
S1	Beliefs in human goodness	✓		

(*Continued*)

Table 3 (Continued)

Scale	Description	MMPI-2	MMPI-2-RF	MMPI-A
S2	Serenity	✓		
S3	Contentment with life	✓		
S4	Patience/denial of irritability	✓		
S5	Denial of moral flaws	✓		
Validity scales				
?	Cannot say	✓	✓	✓
VRIN	Variable response consistency	✓	✓	✓
TRIN	True response consistency	✓	✓	✓
F	Infrequency	✓	✓	✓
F_1	Infrequency 1			✓
F_2	Infrequency 2			✓
F_B	Back infrequency	✓		
Fp	Infrequency psychopathology	✓	✓	
L	Lie	✓	✓	✓
K	Correction	✓	✓	✓
S	Superlative	✓		
F_s	Infrequent somatic responses		✓	
RBS	Response bias		✓	

*Adapted from Weiner & Greene, 2017.

comparison of scales in various adaptations of the MMPI appearing in the MMPI-2, MMPI-A and MMPI-2-RF.

Development of the MMPI-2

As of the late 1950s, the MMPI had become one of the most widely used personality inventories. The use of the MMPI expanded beyond hospital settings and into general medical settings, correctional settings, and military and public safety evaluations. As a result of its growing use, re-standardization was needed to reflect an inventory that was representative of the United States population, contained updated item content, and provided for appropriate representation of different genders, religious views, and ethnic backgrounds (see Table 2). The goal of the re-standardization process was to maintain continuity of the test while making the needed improvements. In 1989, the MMPI-2 was published by James N. Butcher, A. Grant Dahlstrom, John R. Graham, and Auke Tellegen (University of Minnesota Press, 2015; Weiner & Greene, 2017).

With the development of the MMPI-2 came a newly developed item pool containing content scales, content component scales, personality psychopathology five scales, and restructured clinical scales (see Table 3). The clinical scales (hypochondriasis, depression, hysteria, psychopathic deviate, masculinity-femininity, paranoia, psychasthenia, schizophrenia, mania, and social introversion) remained the same as with the original version of

the MMPI. The content scales focused on moving toward uniformity and a content cluster approach including four themes: internal symptoms, external or aggressive tendencies, a devalued view of self, and general problem areas. The content scales include anxiety, fear, obsessions, depression, bizarre mentation, anger, cynicism, antisocial practices, type A, low self-esteem, social discomfort, family problems, work interference, and negative treatment indicators. The clinical subscales include the Harris-Lingoes subscales and social introversion subscales. The Harris Lingoes subscales were created to help with profile interpretation in order to determine if a diagnosis is necessary.

The supplementary scales screen for anxiety, repression, ego strength, dominance, social responsibility, college maladjustment, post-traumatic stress disorder (PTSD-Keane), marital distress, hostility, over-controlled hostility, gender role-masculine, gender role-feminine, addiction admission, addiction potential, and the MacAndrew Alcoholism Scale Revised (MAC-R). Additionally, the MMPI-2 contains the PSY-5 scales: aggressiveness, psychoticism, disconstraint, negative emotionality, and introversion/low positive emotionality. Revised clinical scales include demoralization, somatization, low positive emotionality, cynicism, antisocial behavior, persecutory ideas, dysfunctional negative emotion, aberrant experiences, and hypomanic activation. Validity scales include cannot say, variable response consistency, true response consistency, infrequency, back infrequency, infrequency psychopathology, lie, correction, and superlative.

In the re-standardization process, the committee deleted various items due to content, and reworded items to reflect current language that was easily understood and not sexist. Additionally, a new normative sample was obtained to reflect a national representative of the United States in regard to age, marital status, ethnicity, education, and occupation status. The MMPI-2 also reflects a newly developed item pool containing the following scales: content scales, content component scales, personality psychopathology five scales, and restructured clinical scales. Finally, where the MMPI could be used with all ages, the MMPI-2 is only to be used with adults over the age of 18. The MMPI-A was developed for use specifically with the adolescent population.

Development of the MMPI-A

Initially, the MMPI was designed for use with individuals over the age of 16 (see Table 2). Early on the MMPI was used to detect, diagnose, and plan treatment for delinquent adolescents (Gotts & Knudsen, 2005). However, this posed a number of challenges regarding normative data sets, appropriateness/relevance of item content for a younger population, and the absence of scales developed specifically for the assessment of adolescent development and psychopathology (University of Minnesota Press, 2015). Following initial studies of the use of the MMPI with adolescents, Hathaway and Monachesi performed a longitudinal/prospective study of approximately 15,000 adolescents. In their data collection, Hathaway and Monachesi considered school records, input from teachers regarding students' difficulties, and scores on vocational and intelligence tests, with the intent of identifying MMPI predictors that could indicate risk factors for the development of delinquent behaviors (Gotts & Knudsen, 2005). As a result, multiple normative data sets for adolescents were developed, of which the most frequently used are those by Marks and Briggs (1967). The development of the MMPI-A has provided valuable data for

various topics ranging from prediction of juvenile delinquency to identifying personality precursors of schizophrenia (Gotts & Knudsen, 2005). Additionally, the MMPI-A-RF was published in 2016 with non-gendered norms derived from the MMPI-A normative sample.

As seen in Table 3, in addition to the original 10 clinical scales and PSY-5 scales, the MMPI-A includes similar validity scales, with the exception of back infrequency (F_B) and superlative (S) and the addition of infrequency 1 (F_1) and infrequency 2 (F_2). The Harris-Lingoes subscales are also used in MMPI-A. The most notable differences lie in the content and content component scales. The items are written in a manner that make them relevant and useful for individuals under the age of 16. Additional items focus on conduct, antisocial behaviors, competitiveness, isolation, achievement, and peer group interactions (see Table 3).

Development of the MMPI-2-RF

As previously noted, the MMPI-2-RF (Restructured Form) was developed in part in an effort to revise scales by addressing scale heterogeneity and those with excessively high scale intercorrelations, as they had been identified as psychometrically problematic. The MMPI-2-RF was published by Auke Tellegen and Yosef S. Ben-Porath in 2008. While the MMPI-2-RF maintained continuity with the original MMPI, Tellegen and Ben-Porath created Restructured Clinical (RC) Scales. The MMPI-2-RF uses 60% of the MMPI-2 item pool and the same normative data from 1989. The biggest changes are seen in the alteration of validity scales of the MMPI-2. While the methodology used to develop the MMPI-2-RF has been both criticized and defended, some argue that the MMPI-2-RF is a new test, rather than a revision of the MMPI-2 (University of Minnesota Press, 2015).

As seen in Table3, the most recent revisions to the MMPI based on changes included restructuring of the MMPI-2 to the MMPI-2-RF. The number of items dropped from previous versions of the MMPI to approximately 300 (see Table 3). The scales in the MMPI-2-RF include validity scales, restructured clinical scales, PSY-5 scales, higher-order scales, somatic/cognitive scales, internalizing scales, externalizing scales, interpersonal scales, and interest scales. The changes reflected in the MMPI-2-RF are linked conceptually and empirically to modern theories and models of personality, as well as psychopathology.

Administrating, Scoring, and Interpreting the MMPI

The various forms of the MMPI (MMPI-2, MMPI-A, MMPI-2-RF) are self-report inventories that can be administered through various methods including paper and pencil, online, or on the computer. The accuracy of the respondent's self-report is influenced by their motivation to provide an accurate self-report and their awareness and insight into their thoughts, behaviors, and emotions (Butcher, Haas, Greene, & Nelson, 2015). Scoring on the MMPI can be done by hand or on the computer, either directly if taken on the computer or

through the responses being entered into the computer. Hand scoring of the MMPI is generally discouraged as it is prone to error and is extremely time consuming (Weiner & Greene, 2017). There are a number of factors to consider when assessing the validity of the administration of the MMPI. First, the clinician must consider the respondent's item omission. Generally speaking, as the number of items omitted approaches 30, for all versions, the results become more uninterpretable (Weiner & Greene, 2017). Second, the consistency of item endorsement is measured by the Variable Response Inventory (VRIN) and True Response Inventory (TRIN) scales. Finally, accuracy of item endorsement is assessed to determine whether respondents provide self-favorable descriptions of psychopathology or self-unfavorable descriptions of psychopathology.

When interpreting the MMPI, it is important to remember to analyze the scores in the context of the individual respondent. Best practice would suggest that the MMPI is given as part of a battery of psychological tests in order to provide support for pathology and/or diagnosis. Interpretation of the MMPI is based on codetypes, which is the two highest clinical scales elevated to a over 65 or greater. A *spike codetype* refers to a single elevated scale. As codetypes are identified, they can be interpreted to identify various signs of pathology and can be used in conjunction with the DSM-V to diagnosis various mental illnesses. Additionally, an MMPI profile can be compared to different comparison groups (i.e. psychiatric patients, personnel screening applicants, prison inmates, etc.), rather than the standard normative group.

Intellectual and Social Context

Use of the MMPI in Clinical Settings

The MMPI was originally designed by Hathaway and McKinley (1943) for use in clinical settings. The intent was to identify and assess individuals' personality structure for possible pathologies through their self-report. However, discrepancies existed, and continue to exist, between psychological tests and diagnostic classification systems (i.e. Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-V)). A number of research studies have indicated that while the MMPI provides valuable information related to a client's mental health, in and of itself, it is not a sufficient diagnostic tool. While the MMPI alone is not sufficient when making a psychiatric diagnosis, it has been found helpful in aiding clinicians in considering differential diagnoses. Various scales within the MMPI have been identified as predictors of psychiatric disorders such as anxiety disorders, depressive disorders, substance-related disorders, etc. For example, depressive disorders have been found to correlate with the MMPI-2 RF scales Emotional/Internalizing Dysfunction (EID), Demoralization (RCd), Low Positive Emotions (RC2), and Self-Doubt (SFD) (Haber & Baum, 2014). Additionally, anxiety disorders were predicted by responses to scales related to gastrointestinal complaints and other somatic responses (Haber & Baum, 2014). Therefore, the MMPI is widely used in both inpatient and outpatient clinical settings to identify areas of an individual's personality and assess for possible related psychopathologies.

Use of the MMPI in Correctional Facilities and Legal Proceedings

The MMPI has also been used in a variety of ways in the legal environment and has an extensive research base to support its use. For decades, forensic psychologists have used psychological evaluations in personal injury litigation, evaluations of criminal and prison populations, determining the need for psychiatric commitment, the capacity of a parent to provide care to his or her children or be granted custody of children, and in the evaluation of immigrants. With regard to intimate partner violence (IPV), the MMPI-2 has been found to provide an accurate appraisal of the victim's psychological functioning and credibility (Friedman, Lewak, Nichols, & Webb, 2008). Although its use in legal cases differs greatly from its clinical use, the MMPI-2 has been widely accepted as a reliable and valid assessment of an individual's mental health status and personality characteristics in forensic psychology. Additionally, the MMPI-2 can be used with diverse populations and has been shown to be a fair evaluation of minorities and non-English speaking individuals. Interestingly enough, the MMPI-2 is preferred by forensic practitioners over the most recent version, the MMPI-2-RF (Friedman, Lewak, Nichols, & Webb, 2008).

Use of the MMPI for Personnel Screening

Personality evaluations, in addition to background checks, are widely used in employment screening processes. Various employment opportunities require screening for personality structure, possible psychopathologies, and unwanted behaviors. The MMPI is most commonly used in the personnel evaluation of first responders (i.e. police officers, fire personnel, and paramedics), nuclear power plant employees, and various other occupations where fitness for duty must be examined. The MMPI-2 has been widely utilized in the screening of police officer applicants. Applicants are often being screened for antisocial behaviors, drug and alcohol use, and other behaviors often correlated with embezzlement, excessive use of force, tampering with evidence, perjury, misuse of a firearm, accepting bribes, etc. (Butcher, 2006). Additionally, the MMPI has been used in military settings, specifically in screening individuals for acceptance in aviation or special operations positions.

Current Emphasis and Future Directions in Research, Theory, and Methodology

Since its inception, the MMPI has undergone multiple revisions and has been translated into many different languages. One of the most current uses and emphases of the MMPI relates specifically to the use of the MMPI-2-RF with law enforcement. The MMPI-2-RF now offers the Police Candidate Interpretive Report (PCIR) developed by Corey and Ben-Porath (2017). The goal in developing the PCIR for the MMPI-2-RF was to create an easily accessible and evidence based report that provided meaning to a candidate's scores. The overall hope is that the PCIR will enhance the quality and effectiveness of police officers, while decreasing counterproductive behaviors and increasing public trust. Future research related to the MMPI includes following technological developments and electronic

advancements. It is expected that self-report measures will continue to be important and therefore the need for regular evaluation and development of new norms will exist.

See Also

DSM-V
James N. Butcher
Personality and Forensic Psychology
Reliability, Issues of
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Multidimensional Personality Questionnaire

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Overview

The Multidimensional Personality Questionnaire (MPQ), developed by Auke Tellegen and colleagues in 1982, is a self-report questionnaire composed of 276 items (2011). This questionnaire has expanded research on the topic of personality from the well-known Myers-Briggs Type Indicator (MBTI) and Minnesota Multiphasic Personality Inventory (MMPI). The MBTI became a quickly popular personality test because it evaluates what is considered a "typical personality" based on the decisions that a person makes, which was seen as more indicative of a person's personality (2016). Conversely, the MMPI is used to measure a person's level of psychopathology present in their personality (Framingham, 2015) which led to the popularization of this inventory being used in a variety of clinical settings (Framingham, 2015). The main objective of the MPQ, however, is to assess normal personality (2011), which is defined as being devoid of psychopathology (Neuman, 2013). This questionnaire uses a dimensional approach (2011), which differs from the previous personality test models because it does not categorize the test taker into a type of personality, but rather describes the extent to which the person exhibits each personality trait (Dimensional models of personality disorders, n.d.).

Previous editions of the MPQ have included both 300 and 198 items, however the current edition has 276 items (Patrick & Curtin, 2002; Multidimensional Personality Questionnaire). There is also a short form available, which consists of 155 items and takes approximately 30–40 minutes to administer (2011).

Test Components

There are 11 primary trait scales used to assess personality within the MPQ. The labels of the primary traits are Well-Being (WB), Social Potency (SP), Social Closeness (SC), Absorption (AB), Achievement (ACH), Alienation (AL), Stress Reaction (SR), Aggression (AG),

Control (CON), Harm Avoidance (HA), and Traditionalism (TRA) (DiLalla et al., 1993). Table 1 provides the descriptions of each of these traits, as well as the number of items included for each.

The MPQ is divided into four higher order traits: Positive Emotionality (PEM), Negative Emotionality (NEM), Constraint (CON), and Absorption (AB) (MPQ Standard 2011). As shown in Table 2, a person that scores high in PEM exhibits behavior of enjoyment in social and work environments. In contrast, people that score high in NEM are likely to experience high levels of anger and anxiety. CON is characterized by a person having the tendency of inhibiting their impulses and not engaging in risky behavior. Lastly, AB is represented by the acceptance of an extremely vivid imagination, including a higher internal sensory experience. Persons that are experiencing this heightened imagination may also have either a "peak experience" or a dissociative effect; this is dependent on additional personality characteristics. These four higher order traits are assessed using the 11 primary trait scales, which then indicate the level of each higher order trait within a person's personality.

As seen in Table 2, the four higher order traits are typically associated with specific primary traits. Positive Emotionality (PEM) is associated with the traits Well-Being, Social

Table 1 The Primary Traits and Description Including the Number of Items of Each Trait Within the MPQ (MPQ Standard 2011)

Primary traits	Description of high scorers
Well-Being (WB) – 23 items	Generally optimistic, feel good about themselves, and enjoy what they do
Social Potency (SP) – 25 items	Persuasive in nature and enjoy being the center of attention
Achievement (ACH) – 20 items	Highly driven, enjoy challenging tasks, and ambitious
Social Closeness (SC) – 21 items	Sociable, generally warm and affectionate, and are comforted by being around others
Stress Reaction (SR) – 23 items	Are anxious, easily upset, and irritable
Aggression (AG) – 19 items	Tendency to be physically aggressive toward others for own enjoyment
Alienation (AL) – 20 items	Prone to thinking others are wishing them harm
Control (CON) – 24 items	Cautious in nature, level headed, and like to plan ahead
Harm Avoidance (HA) – 26 items	Prefer to engage in activities that are not dangerous or tedious
Traditionalism (TRA) – 27 items	High moral standards and have a regard for order and law
Absorption (AB) – 34 items	Tend to be imaginative, engage in "crossmodal" experiences (i.e. synesthesia), and more likely to experience an altered state of consciousness

Table 2 Four Higher Order Traits and Descriptions Including the Primary Traits within each Higher Order Trait (DiLalla et al., 1993)

Higher order traits	Description
Positive Emotionality (PEM) Primary traits: WB, SP, ACH, and SC	**High Scorers:** Prone to experience happiness, and engage in rewarding personal interactions **Low Scorers:** Tend to be joyless, have loss in interests, and exhume depressive disengagement
Negative Emotionality (NEM) Primary traits: SR, AG, and AL	**High Scorers:** Prone to anger, anxiety, and negative emotional / behavioral engagement **Low Scorers:** Tend to remain calm, unemotional, and relaxed
Constraint (CON) Primary traits: CON, TRA, and HA	**High Scorers:** Tendency to avoid risk, refrain from giving into impulses, and do not engage in unconventional behavior **Low Scorers:** Inclined to act on impulses, engage in risky behaviors, and are not impacted by typical social norms
Absorption (AB) Primary traits: AB	**High Scorers:** Tend to be more imaginative and experience altered states **Low Scorers:** Engage in subjective experiences

Potency, Achievement, and Social Closeness. Negative Emotionality (NEM) is assessed with the traits Stress Reaction, Aggression, Alienation, and Absorption. Constraint is indexed by the traits Control, Traditionalism, and Harm Avoidance (DiLalla, et al., 1993).

In addition to the 11 primary trait scales, the MPQ also includes scales that are used to test the validity of the test. The Variable Response Inconsistency (VRIN) and the True Response Inconsistency (TRIN) scales are two of the scales used to test validity within the primary trait scales. The VRIN scale tests consistency between responses of questions that contain similar content, which indicates that the questions should be answered similarly. The TRIN scale contains questions that, if scored in the opposite direction, are similar. Meaning, there is inconsistency if there is an imbalance of "true" or "false" answers (Patrick & Curtin, 2002).

Test Administration

The MPQ is typically administered to a population of, at least, 18 years or older, with a minimum of a 6th grade reading level. The test takes approximately 35–50 minutes to administer, with the short form taking only 30–40 minutes (MPQ Standard 2011).

Reliability and Validity

Reliability is an important aspect of any assessment because it demonstrates the accuracy of the test's findings. This can be evaluated using many techniques, including the popular

inter-item correlation and test-retest correlation. An inter-item correlation is a type of internal consistency evaluation that assesses the relationship between items within an assessment that are designed to test the same thing. The latter, test-retest correlation, assesses the reliability of results from one time to another (Trochim, 2006).

Tellegen and Waller used these techniques to assess the internal consistency and reliability of results for the MPQ. Using four groups of individuals – the first two comprised of male and female college students and the last two comprised of identical and fraternal twins ranging from 18–30 years old – the researchers found that none of the 11 scales fell under an alpha of 0.75 within the inter-item correlation which means that the relationships between the items that are meant to test similar aspects are strong. A one-month test-retest correlation was also evaluated using the college age sample, in which a correlation of 0.89 was found. Which indicates that the reliability of results is also strong (Tellegen & Waller, 2008).

In addition to reliability, validity is also an important aspect of an assessment because it shows that a test is evaluating what it is meant to evaluate (Trochim, 2006). The validity for the MPQ was assessed by comparing it against other well-known self-report personality measures (Tellegen & Waller, 2008). This technique is often used to investigate construct validity (Trochim, 2006). The findings of this evaluation showed that there were many positive correlations between these tests. One such assessment includes the Minnesota Multiphasic Personality Inventory-2 (MMPI-2). The correlation between these tests showed that the MPQ PEM scale was more strongly related to the MMPI-2 depression measure ($r = -.67$) than it was to the MMPI-2 anxiety measure ($r = -.19$), and vice versa which supports Tellegen's PEM-depression/NEM-anxiety model (Tellegen & Waller, 2008).

Conclusion

Overall, the MPQ was developed to identify and explain dimensions of an individual's personality through self-report measures. In evaluating the reliability and validity, it was shown that the developers successfully accomplished their goal. The MPQ could be beneficial in counseling, clinical, and research settings in which the scores could be used to provide feedback that is individualized to the person. The scores obtained through this evaluation could also help an individual to better describe and understand their personality traits, strengths, and weaknesses (Tellegen & Waller, 2008).

See Also

Positive and Negative Affective States, Assessment of
Subjective Well-Being, Assessment of

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Myers-Briggs Type Indicator

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Overview

The Myers-Briggs Type Indicator (MBTI®) is an instrument published by CPP, Inc. designed to determine a respondent's preferences in how they see the world and make decisions, based on four pairings stemming from Carl Jung's theory of psychological types.

It was created by Katharine Cook Briggs and Isabel Briggs Myers with the purpose of making Jung's theory relevant and understandable in people's everyday lives. The instrument aims to identify preferences in respondents' patterns of answers that can then be classified into one of 16 personality types.

Despite widespread use in a variety of organizational settings, the MBTI's psychometric properties have been subject to criticism from academic researchers.

History

Katherine Cook Briggs and Isabel Briggs Myers published the *Briggs Myers Type Indicator Handbook* in 1944 as an effort to help women entering the war-time industrial workforce find jobs suitable for their personalities. Briggs, despite lacking academic affiliation, theorized her own personality typologies that she adapted to fit Jung's after reading his book *Psychological Types*.

Katherine Briggs' daughter, Isabel Myers, developed her own interest in personality types that galvanized with the onset of World War II. Myers had little formal training in psychology or psychometrics, and apprenticed under Edward Hay, a personnel officer in Philadelphia. In 1962, the Educational Testing Service published the MBTI (renamed in 1956) for research purposes only. Mary McCaulley (University of Florida) updated the MBTI *Manual* for its 1985 publication after Myers died in 1980. Myers transferred MBTI publication rights to CPP in 1975, and with McCaulley, founded CAPT as a research laboratory.

Currently, three entities promote the MBTI. CPP is the publisher of the MBTI. CAPT is a not-for-profit research and training center providing numerous resources, including the peer-reviewed *Journal of Psychological Type.* The Myers & Briggs Foundation (2015) provides guidance in accurate and ethical use of the MBTI instrument, and awards biennial "Isabel Briggs Myers Memorial Research Awards." Myers' son, Peter Myers, and his wife, Katharine Downing Myers, currently hold the copyright to the MBTI, which will be passed to the Myers & Briggs Foundation upon their deaths.

According to Cunningham (2013), the MBTI is the most popular personality test in the world, with 2 million people taking it annually, frequently at the request of employers, vocational counselors, or career coaches. Its users include more than 10,000 companies, 2,500 universities, and colleges, and 200 government agencies. As of 2015, 89 *Fortune 100* companies had used it within their organizations.

Purpose, Preferences, and Personality Types

The MBTI is designed to determine respondents' preferences in four opposite pairs known as "dichotomies." Each dichotomy is a division of two mutually exclusive groups, in this case, type preferences, typically referred to with a letter abbreviation: Extraversion (E) – Introversion (I), Sensing (S) – Intuition (N), Thinking (T) – Feeling (F), and Judging (J) – Perceiving (P). Based on these preferences patterns, the instrument categorizes a person into one of 16 personality types, where each type is a combination of the four dichotomies, e.g. INTJ.

The Extraversion/Introversion dichotomy categorizes respondents' preferences in how they focus attention, with "extraverted" people preferring to focus on the external world, and "intraverted" people preferring to focus on the internal world. Briggs and Myers conceptualized this pairing similarly to Jung's attitude-based description of introversion and extraversion as based in the relationship between energy, action, and reflection, with *extraverts* gaining energy from action and losing energy from reflection, and *introverts* losing energy through action and gaining through reflection.

The Sensing/Intuition dichotomy categorizes respondents' preferences in how they absorb information, with people in the "sensing" category taking in information in an orderly, step-by-step fashion, relying on their five senses, while those in the "intuition" category taking in information holistically, seeing it in a wider context. Jung described this set of functions as "perceiving" functions, since they involve how people gather information as they perceive the world.

The Thinking/Feeling dichotomy categorizes respondents based on how they make decisions after taking in information, with people in the "thinking" category preferring to be as objective and rational as possible, and people in the "feeling" category preferring to rely on empathy and inserting themselves into a situation. Jung described this set of functions as "judging" functions. After gathering information through either sensing or intuiting, one uses either thinking or feeling to make a decision. *Thinkers* attempt to detach themselves from the situation and think about it logically and rationally, while *feelers* attempt to see the situation from each side's eyes and make a decision resulting in the best fit for all parties involved.

According to Jung, each person uses one of the above four functions more predominantly than the rest, and the four functions operate together with attitudes of extraversion or introversion, in that each function can be expressed in either an extraverted or introverted way. Briggs and Myers added to these a classification of what function (judging or perceiving) respondents prefer as a lifestyle.

The Judging/Perceiving dichotomy categorizes respondents in terms of how they deal with the world, with people in the "Judging" category preferring to decide on a course of action and carry it out, and people in the "Perceiving" category preferring to continue to take in information before taking action. *Judgers* prefer making decisions and acting on them in an orderly fashion, and *perceivers* prefer to collect all possible information before acting, and remain open to different courses of action.

Thus, when combining one's attitude (E/I), perceiving function (S/N), judging function (T/F), and lifestyle preference (J/P), 16 different personality types are possible: ENTP, ENTJ, ENFP, ENFJ, ESTP, ESTJ, ESFP, ESFJ, INTP, INTJ, INFP, INFJ, ISTP, ISTJ, ISFP, and ISFJ. Briggs and Myers have further theorized that interactions between preferences, what they call "type dynamics," normally develop in such a way that one "dominant" function (S/N/T/F) appears early in life, one "auxiliary" function during adolescence, and one "tertiary" function during midlife, with an "inferior" function (the opposing preference of the dominant) being present in one's unconscious. Which functions assume which roles depends on a person's lifestyle preference (J/P) and attitude preference (E/I).

Formats

According to the Myers & Briggs Foundation, four versions of the MBTI are currently in use: a self-scorable Form M, a standard Form M (administered as MBTI Step I™ by its publisher CPP), Form Q (administered as MBTI Step II™ by CPP), and MBTI Step III™. In any form, the MBTI consists, at a minimum, of a number of forced-choice items asking respondents to choose which of two items they feel best describes them. All forms provide respondents with their four-letter personality type, but the MBTI Step II™ is designed to provide a more nuanced assessment of a respondent's personality, and the MBTI Step III™ is intended solely for use in one-on-one counseling or coaching sessions.

The MBTI Step I consists of 93 items and typically takes about 20 minutes to complete. Scoring the test provides respondents with their four-letter personality type. To administer the test, potential users are required to become an MBTI Certified Practitioner by completing a four-day MBTI Certification Program, or by providing verification of credentials, including a Master's degree or state certification in a psychology-related field. This instrument and manual have been translated into 20 different languages.

The MBTI Step II consists of 144 items and typically takes about 35 minutes to complete. Scoring the test provides respondents with their four-letter personality type, along with more personalized description of their preferences through the use of facets of each type. CPP recommends this version of the instrument for coaching, action planning, and team building. It can be administered by individuals completing the MBTI Certification Program.

The MBTI Step III consists of 222 items and is intended for use in coaching or counseling sessions between a client and a practitioner. It provides respondents with their four-letter

personality type, although in the context of a report written to the client in "non-type" language, designed for exploration through dialogue with a counselor. The Center for Applications of Psychological Type (CAPT®) (2015) requires prospective practitioners of the MBTI Step III to complete their MBTI® Step III Certification Program, in addition to meeting the qualifications of administering the Step I and Step II tests.

Criticisms

Despite its popularity, the MBTI has been subject to criticism from academic psychologists and psychometricians, who attribute its widespread use to aggressive marketing by CPP. Much of the criticism stems from academic research starting in the late 1970s (see 2005 review by David Pittenger in *Consulting Psychology Journal: Practice and Research*) revolving around the MBTI's emphasis on dichotomous (as opposed to continuous) scales, test-retest reliability, predictive ability for career success, factor analytic (see Factor Analysis in Personality Research) structure, convergent validity, and discounting of situational influences on behaviors or cognitions.

Trait theorists disagree with the MBTI's foundation in type theory, the belief that people can be classified dichotomously (e.g. a person prefers *either* extraversion or introversion) instead of viewing personality constructs as a continuous scale between two poles. If people were truly able to be classified dichotomously, then distributions of scores should be bimodal on each preference dimension but trait scores' distributions tend to show most scores clustering near a midpoint. Thus, opponents argue that assuming statistically significant personality differences exist between individuals may not be true for respondents whose scores place them near the midpoint of a preference dimension. Also, several studies have shown test-retest reliability for the 16 MBTI types to be lower than desired.

A common model the MBTI has been compared to in convergent validity examinations is the Five Factor Model (FFM, see Big Five) of personality. Scores from extraversion, openness, agreeableness, and conscientiousness have been shown to have positive correlations with MBTI scores in extraversion (although Jung's definition is somewhat different than modern conceptualizations), intuition, feeling, and judging. The fifth component, neuroticism, has appeared to not overlap with any MBTI preference type – something FFM proponents have criticized, although the MBTI Step III instrument attempts to include this dimension.

The Myers & Briggs Foundation appears to counter the accusation of over-reliance on type in their website's ethical guidelines for administering the MBTI: "Explain how people can and do act in ways contrary to their preferences because of personal history, education, training and experience – and sometimes too because of pressure from family, relationships, job environment, or culture." Other guidelines, such as "Present psychological type as describing healthy personality differences, not psychological disorders or fixed traits" and "The administrator should not counsel a person to, or away from, a particular career, personal relationship or activity based solely upon type information," seem to address criticisms relating to the stability of types, and using the instrument to predict job performance, respectively.

MBTI supporters point to numerous studies supporting the MBTI's utility, validity (see Validity, Issues of), and reliability (see Reliability, Issues of), yet most of those studies have appeared in the *Journal of Psychological Type*, which, while peer-reviewed, is funded by CAPT. Articles supporting the MBTI's validity in prominent scholarly journals are scarce, although Robert and Mary Capraro published a largely positive meta-analysis of its reliability in 2002 in *Educational and Psychological Measurement*.

See Also

Big Five
Carl Jung
Lewis Goldberg
Myers-Briggs Type Indicator
Reliability, Issues of
Validity, Issues of

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Nonverbal Personality Questionnaire (NPQ)

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The Nonverbal Personality Questionnaire (NPQ) is a structured nonverbal assessment of personality. The NPQ measures 16 different personality traits: achievement, affiliation, aggression, autonomy, dominance, endurance, exhibition, thrill seeking, impulsivity, nurturance, order, play, sentience, social recognition, succorance, and understanding. The 136 items on the instrument are made up of simple line drawings rather than written statements. Examinees are asked to consider each illustration depicting a personality relevant behavior and then rate the likelihood they would engage in that behavior on a 7-point Likert scale. The primary advantage of the NPQ is that it can be utilized with individuals who have reading impairments or language barriers. In addition, because of the nonverbal nature of the assessment, the NPQ can be useful for cross-cultural research.

The construction of the NPQ grew out of a controversy surrounding the assessment of personality. The controversy involved the claim that descriptors typically used to measure personality in assessments do not represent true components of personality. These descriptors merely represent words people commonly use to describe themselves and others. The evidence supporting this belief is that the underlying factor structures of most self and peer personality assessments are based on the semantic properties of the words used to measure personality in the assessments. The aim of the authors of the NPQ Sampo V. Paunonen and Douglas N. Jackson was to develop a structured nonverbal measure of personality. Other popular nonverbal assessments of personality including the Rorschach inkblot test and the Thematic Apperception Test are unstructured in their response format. This means the examinee can give an open ended verbal response to the presented visual stimuli of the tests. In this regard, the NPQ would be different from those measures. To develop their assessment, the authors first formulated verbal items representing specific behaviors based on the scales and items on Jackson's (1984) Personality Research Form (PRF). These scales on the PRF are based on Henry A. Murray's (1938) system of needs. These situational behaviors were then communicated to an artist who attempted to convey them pictorially. Three PRF content scales (Change, Cognitive Structures, and Defendence) were eliminated because the authors believed these represent cognitive behaviors and not observable

behaviors. The negative end of the Harm avoidance Scale of the PRF was utilized to create a new scale called Thrill Seeking. In addition, an Infrequency Scale using rare and undesirable items was created to detect random responding. A 202 unedited item pool resulted corresponding with 17 content scales from the PRF and one Infrequency Scale. Using psychometric data from various samples, the 202 item pool was eventually narrowed down to 136 items. These selected items represented the most psychometrically robust items. Later, the authors eliminated one scale (Abasement) due to poor scale and item properties. In its final form, the resulting scales of the NPQ include achievement, affiliation, aggression, autonomy, dominance, endurance, exhibition, thrill seeking, impulsivity, nurturance, order, play, sentience, social recognition, succorance, understanding, and infrequency. The authors believe there are a number of advantages to using a nonverbal measure of personality. Such an assessment could be used with nonnative language speakers, individuals who are dyslexic, and illiterate examinees. (For these examinees, the test administrator would give the instructions of the NPQ orally.) Also, the NPQ could be used to assess people with various speech pathologies. In addition, young children might find the drawings more attractive than an assessment with only verbal content. Mentally disordered clients with short attention spans could be properly assessed as well. Finally, because of the nonverbal content, the NPQ could be used in cross-cultural research studies.

A large international sample was utilized for the standardized process with data sets coming from Canada, England, Norway, the Netherlands, Germany, Poland, Israel, Russia, and Hong Kong. Internal consistency estimates ranged from .60 to .84 for each personality scale. In terms of convergence validity, for those in the standardization sample who completed both the NPQ and the PRF a moderate convergence was observed (M correlation = .46). For its underlying factor structure, 83.8% of the personality scales variance can be accounted by five meta-factors that correspond with the Five Factor Model.

Some reviewers of the NPQ have articulated a number of criticisms of the assessment in its present form. One concern involves the simple line drawings utilized in the items of the NPQ. Some of the items may be seen as ambiguous by examinees and lead to poor item reliability. Hence, more sophisticated artwork is warranted. Another concern is that a larger, more demographically representative sample than the one used to validate the instrument is needed. This would strengthen the evidence for the reliability and validity of the assessment. A final issue proposed by reviewers is that a greater understanding of the underlying structure of the NPQ is required. This, too, would strengthen its validation. The authors of the NPQ do state that the assessment is not "culture free." They and the reviewers suggest that the NPQ may be more relevant to Western, educated, middle-class individuals.

See Also

Anger
Big Five
Cross-Cultural Research, Methodological Issues of
Culture and Personality

FFM and Facets
Goldberg vs Costa/McCrae Five Factors
Henry A. Murray

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Objective-Analytic Test Battery (OA TB)

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Creation of the Objective-Analytic Test Battery

The assessment of personality began as a collective effort by many psychologists, but Raymond Bernard Cattell was credited with creating a new approach to measuring personality that did not solely utilize self-report measures. This assessment was called the Objective-Analytic Test Battery. Cattell made three important observations in understanding personality that aided in developing the Objective-Analytic Test Battery. They were called Life Record, questionnaire, and objective tests. Respectively, they are known as L-Data, Q-Data, and T-Data. Initially, Cattell's research developed from the L-Data to determine what were the basic aspects of behaviors, which he named "Personality Sphere." The L-Data can be defined as a behavioral rating material because its measures are based on variables tested in a natural setting. Through his work, Cattell was able to use the L-Data factors that were yielded to create a hypothesis for the systematic extension of personality research in to Q-Data and T-Data. Q-data is defined as a questionnaire because a person self-reports personal qualities verbally. T-data is one of the main measures of the Objective-Analytic Test Battery. It can be defined as any test in which what is being measured reveals the same results regardless of who is administering it (Cattell, 1956). Cattell developed his 16 Personality Questionnaire, which was based more on Q-Data. He knew that there were some situations in which self-reports were necessary, but they have their limitations. When it comes to situations in which a participant can skew results through self-reporting by providing a socially desirable response or distorting the truth, objective tests are ideal.

The Objective-Analytic Test Battery

The underlying principle that the Objective-Analytic Test Battery was developed from is that personality is expressed in our actions. Who we really are is not what we say, but rather, what we do. Therefore, each Objective-Analytic Test is crafted in a way that the

results are not influenced by any other variable other than personality. The objectiveness of these tests leads advocates of Objective-Analytic Tests to think that it is a superior way of assessing personality. Both L-Data and Q-Data are susceptible to both voluntary and involuntary biases from the participant, due to the way in which they assess personality. However, T-Data avoids intentional deception since participants are not aware of what is being measured from the assessment (Santacreu, Rubio, & Hernández, 2006). Therefore, instead of measuring directly what a participant reports or only observing them in a natural setting, Objective-Analytic Tests measure behavior in such a way that the participant is unaware that personality is being assessed. Objective-Analytic Tests have been developed in a variety of formats, that includes 12 categories: performance tests, perceptual tests, ability tests, questionnaires, aesthetic tests, projective tests, opinionanaires, situational tests, games, physiological tests, incidental observation, and physical tests (Verma & Singh, 2014).

How Does it Work?

The Objective-Analytic Tests aim to keep elements of the test completely objective. The key difference here is that the individual that is being assessed does not know how that test is being scored. These tests are made to be an alternative to subjective self-report personality questionnaires and rating scales. Some projective tests, like the Rorschach inkblot test and Murray's thematic apperception test, do attempt to measure a person's personality without asking them directly (Schuerger, 2008). This is similar to Objective-Analytic Tests, but these tests are not direct enough. In one form of the Objective-Analytic Tests, participants are placed in miniature situations and their responses and reactions are recorded and measured. An example of this type of study is one that requires individuals to complete a half drawn image. Here, the participants are given the task to complete, but are unaware of how it will be scored or what precisely it is measuring. The researcher can score it by looking at the number of attempts it took to complete the image or examining the quality of the completed image. Additionally, Objective-Analytic Tests can also be structured in questionnaire format. In this form of Objective-Analytic Tests, participants may have to subjectively choose how they feel about a particular event, like levels of rewards for acts of heroism in the news. Though this choice is subjective on the participant's end, the objectivity with which it is scored is what qualifies it as an Objective-Analytic Test.

Types of Objective-Analytic Tests

There is a vast variety of types of Objective-Analytic Tests that comprise the battery. In total, psychologists can choose from about 500 Objective-Analytic Tests that can assess personality and ultimately predict behavior. One example of an Objective-Analytic Test that measures personality is the Picture Inspection Test. This assessment tests for emotional disturbance effects, like a person's aggression versus non-aggression through the use of pictures. Another example of an Objective-Analytic Test is the Tapping: Interrupted versus Uninterrupted Performance Test, which assesses for the honesty level of the participant

in a scenario-type situation. Although these tests are different in what they are testing, it is important to remember that these tests are objective and all belong to the same battery (Verma & Singh, 2014). A psychologist will pick a selection of these Objective-Analytic Tests, depending on what aspect of personality and behavior they are investigating.

Limitations and Strengths

The Objective-Analytic Tests, individually, have limitations. Each test measures a dimension of personality or behavior in such a specific way that it can be hard to generalize these results to other situations. The battery, however, is composed of so many of these tests that psychologists can choose multiple tests when testing a participant that can help with the issues of external validity. Thus, by utilizing more tests from the battery to increase external validity, there are many uses for these tests, such as assessing an individual's leadership qualities, organizational skills, and pro-social behaviors. They have recently been used to help with selecting and training military personnel. Consequently, Objective-Analytic Tests can be used to determine the general competence of army personnel and personality traits that are highly associated with success in that line of work (Verma & Singh, 2014).

See Also

Raymond B. Cattell
Response Styles, Issues of
Validity, Issues of

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Personality Assessment Inventory (PAI)

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The Personality Assessment Inventory (PAI; Morey, 1991, 2007) is an objective broadband self-report measure of adult personality and psychopathology with clinical, forensic, and personnel selection applications. The instrument is appropriate for individuals 18 years of age or older with at least a 4th-grade reading level. Administration requires approximately 50 minutes, with an additional 20 minutes for scoring. A Spanish edition of the PAI is also available. The 22-item Personality Assessment Screener (PAS) can be used to approximate the likelihood of important clinical elevations occurring on the PAI. For younger patients, the Personality Assessment Inventory – Adolescent (PAI-A), a 264-item instrument, can be administered to adolescents 12 to 18 years of age.

The PAI is composed of 344 four-point scale items constituting 22 non-overlapping scales: four validity scales (Inconsistency, Infrequency, Positive Impression, Negative Impression), 11 clinical scales (Somatic Concerns, Anxiety, Anxiety Related Disorders, Depression, Mania, Paranoia, Schizophrenia, Borderline Features, Antisocial Features, Alcohol Problems, Drug Problems), five treatment consideration scales (Aggression, Suicidal Ideation, Nonsupport, Stress, Treatment Rejection), and two interpersonal scales (Dominance, Warmth). The validity scales assess the potential influence of certain response tendencies, including random responding, systematic profile distortion, and positive and negative impression management. The clinical scales measure psychopathological traits judged to be relevant based on their historical and contemporary popularity among psychologists. Nine of the 11 clinical scales have subscales that represent more specific aspects of the trait. The treatment consideration scales provide indicators of potential treatment complications, assessing an individual's potential for harm to self or others, environmental circumstances, and motivation for treatment. The interpersonal scales assess interpersonal style along two dimensions: warm and engaging versus cold and rejecting, and dominant versus submissive.

Construction and Psychometric Properties

PAI development was based on a construct validation framework emphasizing both theoretical/rational and quantitative methods of scale development. This approach – choosing items based on both theoretical and statistical grounds – is unique to the PAI among well-known objective multiscale personality inventories, including the Minnesota Multiphasic Personality Inventory-2 and Millon Clinical Multiaxial Inventory-IV. PAI construction is also unique because its subscales do not share any items (Wise, Streiner, & Walfish, 2010).

Norms for the PAI manual were developed from three separate samples, each composed of over 1,000 participants: a census-matched general population sample, a college sample, and a clinical sample. A sound body of research supports the PAI's validity. Concurrent validity and diagnostic utility for the instrument's scales and subscales have been demonstrated across numerous studies. For instance, diagnostic applications are reported for college students, inmates, psychiatric outpatients, psychiatric inpatients, and medical patients. The convergent and discriminant validity of PAI scales relative to other self-report tests and clinician-rated measures have also been established. Construct validation using life-event data from forensic and substance abuse samples is also reported (Slavin-Mulford et al., 2012).

Internal consistency and test-retest reliability for the PAI are similarly well-supported. Internal consistency alphas for PAI full scales in general population, college, and clinical samples were each greater than .80 (excluding the Inconsistency and Infrequency scales, whose lower alphas are appropriate because they measure carelessness, not theoretical constructs). Test-retest reliability has been demonstrated in a sample of community members with administrations separated by an average of 24 days. All scales, again with the exception of Inconsistency and Infrequency, demonstrated test-retest *r*s greater than .75. Most scale *T*-scores changed only two to three points between the first and second administrations (Wise, Streiner, & Walfish, 2010).

Applications and Use

Clinical

The PAI full scales and subscales have diagnostic utility in both inpatient and outpatient clinical settings. For example, the Schizophrenia scale differentiates schizophrenic-spectrum diagnoses from inpatients with other diagnoses, the Borderline Features scale and its subscales identify individuals with borderline personality disorder among psychiatric outpatients, and differential diagnosis among college students with post-traumatic stress disorder (PTSD), depressive disorders, or social phobia has been demonstrated. Eleven PAI scales have been shown to identify significant life events, including suicide attempt, psychiatric hospitalization, trauma, medical problems, hallucinations, paranoid ideation, drug abuse, alcohol abuse, and arrest (Slavin-Mulford et al., 2012).

Forensic

The PAI is frequently used in forensic settings to predict different types of misbehavior, including institutional misconduct, violence, and recidivism. Specifically, scores on the Antisocial Features, Aggression, and Borderline Features scales have been identified as small to moderate predictors of misconduct in forensic treatment settings, with larger effects noted for correctional settings. Antisocial Features and Aggression have proven consistent and robust predictors of all types of institutional disciplinary infractions, criminal recidivism, and violence (Gardner et al., 2015).

The PAI is also useful in predicting the mental health needs of inmates. Its relatively low 4th-grade reading level is consistent with the low educational attainment of many prisoners. However, it still adequately identifies relevant clinical factors of interest to prison officials tasked with managing the behavioral and mental health needs of inmates. Treatment consideration and interpersonal scale scores aid predictions of treatment compliance and treatment interfering behaviors. Finally, the PAI addresses concerns of prisoners' self-report accuracy via the four validity scales incorporated into the instrument.

The PAI's use in the detection of malingering in forensic populations is also established. For example, feigned broad-range cognitive, somatic, and emotional symptoms associated with traumatic brain injury (TBI), as well as simulated posttraumatic stress disorder symptoms, are generally well-detected. Notably, but perhaps less relevant to forensic populations, research has demonstrated difficulty in detecting feigned attention deficit hyperactivity disorder using the PAI.

Personnel Selection

The PAI can be incorporated into evaluation procedures used to determine suitability for employment, particularly for positions that require considerable responsibility or pose significant on-the-job stress. Selection procedures for correctional officer and police officer roles have received significant research attention, yielding support for the PAI's use in evaluating applicants' appropriateness for these positions. In fact, the PAI offers a Law Enforcement, Corrections, and Public Safety Selection Report designed to assist in screening police and corrections officers, firefighters, emergency medical technicians, and communications dispatchers. In addition to the PAI's general population sample, a sample of more than 17,000 public safety applicants from various agencies across the United States is also available for use in scoring and interpreting applicants' protocols.

Strengths and Limitations

In addition to its clinical, forensic, and personnel applications, general strengths of the PAI include its low reading level, multiple large sample norms, readily understood constructs, and quick scoring. The instrument's 4th-grade reading level is accomplished through brief, straightforward item wording unlikely to confuse or inadvertently skew participants'

responses. In addition to the normative data from three large-scale samples included in the PAI manual, other sizeable norms, such as for public safety applicants, are available. Constructs measured by PAI scales are named with terms commonly used by psychologists and that can be readily understood. Two-part carbonless PAI answer sheets facilitate quick scoring without need for a separate answer key. Interpretive software is also available.

Limitations of the PAI include the absence of measurement of some constructs that may be of clinical interest and its use with individuals not fluent in English or Spanish. While the presence of eating disorders, such as anorexia and bulimia nervosa, may be indirectly intuited from the PAI's extant metrics, a direct measure of this construct is absent from the instrument's clinical scales. As with any psychological instrument, the PAI is intended for administration to individuals fluent in the language of its creation (i.e. English). While a Spanish edition of the PAI is available, interpretation of administrations to individuals not fluent in English or Spanish may yield invalid results.

Future Directions

Recent research suggests the PAI's utility in identifying military service members' level of impairment following TBI. With its multifaceted assessment of personality and psychopathology, examination of the instrument's ability to distinguish between the non-specific symptoms of TBI and PTSD seems likely. In addition to continued exploration of the PAI's utility for differential diagnosis in clinical populations, research on the instrument's forensic applications will also persist. Adding to the extant literature examining the PAI's predictive validity for male inmates, greater attention will be paid to its use with female prisoners. Continued evaluation of the PAI's ability to detect feigned psychological symptoms or disorders also seems likely. While sizeable PAI norms are available for use in law enforcement personnel selection, the opportunity exists to develop similarly robust data sets for evaluation of non-law enforcement aspirants, specifically applicants seeking non-law enforcement roles at the level of individual contributor, manager, or executive.

See Also

Millon Clinical Multiaxial Inventory (MCMI)
Minnesota Multiphasic Personality Inventory (MMPI)

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Revised NEO Personality Inventory (NEO-PI-R)

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The Revised NEO Personality Inventory (NEO-PI-R), developed by Paul Costa Jr. and Robert McCrae, was published by Psychological Assessment Resources, Inc. in 1992 and is one of the most widely used self-report inventories in personality assessment. It was originally developed by Paul Costa Jr. and Robert McCrae in 1985 as the NEO Inventory, the first instrument designed to specifically and systematically measure the five personality factors in the Five Factor model (FFM).

Five Factor Model (FFM): Theoretical Framework of NEO-PI-R

Overview of FFM

The FFM is one of many trait models in personality psychology that has received the most attention in the past four decades and is perhaps the most widely accepted model of personality traits theory. It focuses on the taxonomy of personality traits comprising five dimensions or factors that scholars of personality research have agreed to label as Neuroticism (N), Extraversion (E), Openness (O), Agreeableness (A), and Conscientiousness (C). The Five Factor model is also known as the Big Five theory. The term "Big" implies that these factors are broad and each of them describes a large number of more specific traits on a continuum that characterizes individuals whose traits vary from high to low on the factor. Scholars have generally agreed in regards to the meaning and description of these factors.

Specifically, in contrast to emotional stability, neuroticism summarizes various negative emotions such as anger, hostility, anxiety, depression, irritability, and insecurity. Individuals high in neuroticism are prone to stress, impulsiveness, and low tolerance for frustration. Extraversion and agreeableness concern interpersonal orientation. Extraversion subsumes traits such as being sociable, active, talkative, person-oriented, optimistic, need for stimulation, and capacity for joy; extraversion is in contrast to being reserved,

sober, independent, and quiet. Agreeableness describes traits of being soft-hearted and good-natured, trusting, compassionate, helpful, forgiving, and altruistic; agreeableness is in contrast to being cynical, suspicious, uncooperative, and ruthless. Openness, alternatively labeled as Openness to Experience, concerns the breadth, depth, and complexity of an individual's experience. People high in openness are curious, having broad interests, proactively seeking and appreciating various experiences; openness is in contrast to closed individuals who are conventional, conservative, dogmatic, and rigid in beliefs and attitudes. Conscientiousness describes traits in regard to degree of organization and persistence in goal-oriented behavior. People who are high in conscientiousness are organized, reliable, hard-working, self-disciplined, and persevering; conscientiousness is in contrast to those who are aimless, unreliable, careless, negligent, and hedonistic.

History of FFM

The FFM was developed based on a combination of lexical and empirical approaches. Researchers with a lexical approach believe that personality traits are important in daily life and therefore the languages used to communicate in daily life must contain words describing these traits. The origin of all personality trait models can be traced back to Gordon Allport and Henry Odbert's work in the 1930s when they identified, named, and classified personality traits through searching dictionaries to construct large pools of trait adjectives. Then James Cattell, with an empirical approach, factor-analyzed these traits by statistically sorting them into groups of related traits that are relatively independent of traits in other groups, which led to the development of his own framework of categorizing personality traits into 16 factors. During the late 1950s and early 1960s, two Air Force psychologists, Ernest Tupes and Ray Christal, reanalyzed Cattell's data and for the first time clearly claimed that the five factors were necessary and sufficient in summarizing human personality traits. However, their work remained largely dormant for the next two decades till the early 1980s when the lexical approach was resurrected. The FFM became more recognized and has been the dominant trait model guiding personality psychology since the 1980s, primarily due to Paul Costa Jr. and Robert McCrae's work of reanalyzing the archival data and the development of a series of instruments measuring these factors and their specific facet traits.

Research on FFM

The availability of NEO-PI-R, as well as its preceding versions, has enabled great advancement in personality psychology through numerous studies examining these factors and facet traits. For more than 30 decades, empirical research has accumulated to support the FFM. The five factors have been replicated in many studies using different samples, languages, and item formats. These dimensions have been demonstrated to have a high level of cross-cultural consistency in that they have been observed in more than 50 diverse nations across Eastern and Western cultures. The validity of this model

has also been supported by studies in identifying the emotional and behavioral correlates of these factors. For example, studies found extraversion, agreeableness, and conscientiousness to be associated with emotional well-being, social support, effective coping with stress, and experience of positive life events. On the other hand, neuroticism has been found to correlate with emotional distress, substance abuse, and self-blame. Research also demonstrated developmental stability of these traits and that some of these factors have a heredity component. Overall, research tends to suggest that the five factors may represent a universal structure of personality that transcends cultural differences.

Critics and Future Directions of FFM

However, in spite of the replicability of the five factor structure, there is still some disagreement regarding the content and replicability of the openness factor. Different researchers have used alternative names for openness, such as culture, intellect, and tender-mindedness. This might be due to the use of different materials (e.g. adjectives, questionnaire items) in different studies, or different interpretation of the meaning of "openness" across various cultural contexts; it may focus more on intellect in one culture, conventionality in the other, and openness in yet another culture.

Another question concerning the FFM is whether this model is comprehensive in description of personality traits. In spite of the accumulated evidence in support of its comprehensiveness, there has been increasing effort in identifying other factors beyond the five factors. Some research suggested that the FFM may not represent factors indigenous to certain cultures. For example, a sixth factor, named "Interpersonal Relatedness," was found in the personality structure of Chinese participants. Even though the openness domain was identified in the Chinese personality structure, the sixth factor Interpersonal Relatedness could not be explained by a combination of the five factors in FFM. This may suggest that a six-factor model might be better than the five-factor model for Chinese culture. Moreover, research has found cross-cultural differences with respect to the mean levels of these factors and traits, such that Japanese individuals score higher on neuroticism than Americans. Even though culture may not influence the structure of these factors and traits, the question remains open whether culture influences the mean level of these factors and traits.

A third criticism on FFM has focused on its failure to capture the underlying personality processes, though proponents of FM argued for this model as a framework for describing the phenotypic attributes of personality, rather than the mechanism in the development of these factors.

Apparently, research on the relevance, meanings, implications, and comprehensiveness of the FFM in cross-cultural contexts will continue to be a focus in the literature of this area. Research is also needed to relate the FFM personality structure to the underlying processes with respect to how biological, psychological, and social and cultural variables may impact the formation of the FFM personality structure. Acculturation studies will help to answer the question regarding if, and how, culture or ethnicity may influence the experience of these factors.

Development of NEO Inventories

Even though other instruments exist to measure the five factors, NEO inventories remain the most frequently used series of assessment for FFM. NEO-PI-R is the most recent version of a series of NEO inventories developed over the last several decades. Development of the NEO inventories can be dated back to Paul Costa Jr. and Robert McCrae's analysis of the archival data from a longitudinal study on male veterans collected in 1960s and data from their own study in the 1970s, both of which used earlier editions of the Sixteen Personality Factors Questionnaire (16 PF). These analyses identified three clusters from the 16 PF scales, neuroticism, extraversion, and openness to experience, and found that these three dimensions were very stable across time and different age groups. Specifically focusing on the openness to experience domain, Costa Jr. and McCrae developed the Experience Inventory by adapting some facets from an earlier, similar instrument, and by adding more scales to measure the specific facets of openness. They further hypothesized that personality domains consisted of sets of trait indicators, or subsets, and that an ideal personality instrument would measure the domain through a group of facets that were "mutually exclusive and jointly exhaustive of the domain."

This conceptualization of personality domains and instruments that measure these domains led to the development of NEO Inventory, an instrument with a total of 144 items to measure neuroticism, extraversion, and openness to experience, each of which consisted of six facets. Item factor analyses were used to select these items that loaded on both the general domain and the intended facet. A 5-point Likert-type response format was used. NEO Inventory can be administered through self-report (Form S) or through observer rating (Form R). Subsequent research using NEO Inventory provided evidence of its validity in that the hypothesized three-factor structure could be identified in both the self-report data and spouse rating data, as well as in the joint analysis of self-reports and spouse ratings.

However, the three-factor model in the NEO Inventory was soon found to be incomplete. Thus, the research team added two more domains, agreeableness and conscientiousness, along with an additional 18 items, leading to the publication of NEO Personality Inventory (NEO-PI) in 1985. NEO-PI was then slightly revised for use with college students and college-age norms were added. In addition, NEO Five Factor Inventory (NEO-FFI), a 60-item short version of the NEO-PI, was also introduced as a measure of the five factors only, without reports of the scores on their specific facets.

It should be noted that agreeableness and conscientiousness domains were added to NEO Inventory as global scales without the specific facet scales for each of the domains. Therefore, more items were developed and added to NEO-PI to create facet scales of agreeableness and conscientiousness domains in the same manner as the other three factors. This resulted in 12 new facet scales, six for each domain of agreeableness and conscientiousness, which led to the publication of Revised Personality Inventory (NEO-PI-R) in 1992.

Contents and Structure of NEO-PI-R

NEO-PI-R measures the five personality domains in FFM. Each of these domains consists of six facet scales with each facet scale containing eight items, resulting in a total of 30 facet scales and 240 items. These items are rated on a 5-point Likert-type scale including *Strongly*

Disagree (*SD*), *Disagree* (*D*), *Neutral* (*N*), *Agree* (*A*), to *Strongly Agree* (*SA*). These facet scales and items are balanced to control for acquiescence effect.

The five domains and 30 facet scales are summarized below with a brief description based on the Manual of the NEO-PI-R.

N: Neuroticism	Tendency to experience of psychological distress
N1: Anxiety	Experience of free-floating anxiety
N2: Angry Hostility	Experience of anger and related states
N3: Depression	Feelings of guilt, sadness, despondency, and loneliness
N4: Self-Consciousness	Shyness or social anxiety
N5: Impulsiveness	Act on cravings and urges rather than reining them in
N6: Vulnerability	General susceptibility to stress
E: Extraversion	Quantity and intensity of energy directed outwards
E1: Warmth	Interest in and friendliness towards others
E2: Gregariousness	Preference for the company of others
E3: Assertiveness	Social ascendancy and forcefulness of expression
E4: Activity	Pace of living
E5: Excitement Seeking	Need for environmental stimulation
E6: Positive Emotions	Tendency to experience positive emotions
O: Openness	Active seeking and appreciation of experiences
O1: Fantasy	Receptivity to the inner world of imagination
O2: Aesthetics	Appreciation of art and beauty
O3: Feelings	Openness to inner feelings and emotions
O4: Actions	Openness to new experiences on a practical level
O5: Ideas	Intellectual curiosity
O6: Values	Readiness to reexamine own values and those of authority figures
A: Agreeableness	Interactions one prefers from compassion to tough mindedness
A1: Trust	Belief in the sincerity and good intentions of others
A2: Straightforwardness	Frankness in expression
A3: Altruism	Active concern for the welfare of others
A4: Compliance	Response to interpersonal conflict
A5: Modesty	Tendency to play down own achievements and be humble
A6: Tender-Mindedness	Attitude of sympathy for others
C: Conscientiousness	Organized, persistent, and motivated in goal directed behavior
C1: Competence	Belief in own self-efficacy
C2: Order	Personal organization
C3: Dutifulness	Emphasis on fulfilling moral and ethical obligations
C4: Achievement Striving	Need for personal achievement and sense of direction
C5: Self-Discipline	Capacity to get job done on time
C6: Deliberation	Tendency to think things through before acting or speaking

Forms of NEO-PI-R

Other forms of NEO-PI-R exist for different purposes and populations. NEO Five Factor Inventory (NEO-FFI) is a short form of NEO-PI-R. It has 60 items that measure the five factors only and does not contain the items used to assess the facet traits within each domain. The NEO-FFI is appropriate to use in situations where there is not enough time to respond to all items on the NEO-PI-R and when scores on facet scales are not necessary.

NEO-PI-3 is the adolescent version of NEO-PI-R and was developed for adolescents 12–17 years of age. Items in the NEO-PI-R were revised or edited to lower the required reading level and make the instrument more appropriate for younger examinees or adults with limited literacy. As a result, items in NEO-PI-3 are easier to read and understand than those on the NEO-PI-R. Research is being conducted to determine whether the NEO-PI-3 can replace NEO-PI-R for use with individuals at all ages.

The most recent form of NEO-PI-R is the NEO Personality Inventory-3: Four-Factor Version (NEO-PI-3:4FV) that is designed for use in personnel selection, employee training, and career counseling and career development settings. The NEO-PI-3:4FV focuses on four personality domains: Extraversion, Openness to Experience, Agreeableness, and Conscientiousness. Items, norms, and scoring of these four domains are taken from the same domains of the NEO-PI-3.

All of these NEO inventories have two forms in terms of administration: Form S (Self) and Form R (Rater). Form S is administered to be completed through self-report by the individual being evaluated. Items in Form R are written in the third-person for peer, spouse, or expert ratings. Form R is to be completed by someone who is knowledgeable of or well acquainted with the individual being evaluated. While Form S is administrated on most occasions, the use of Form R in conjunction with Form S may provide additional information. For example, in couples' counseling, using both the Form S and Form R of NEO-PI-R may help the couple to better understand the discrepancy between their perceptions of each other and the counselor to better conceptualize their relational problems and improve their communication.

Administration, Protocol Validity, and Scoring

Administration

NEO-PI-R is for administration to adults 18 years or older with at least a 6th-grade reading level. It can be administered in the paper-pencil format, or by computer, or by playing cassette tapes. Administration of NEO-PI-R may take 20–30 minutes. The person who administers NEO-PI-R is expected to have adequate knowledge regarding psychological assessment in general and NEO-PI-R in particular for his or her qualifications to administer the instrument.

The administration of NEO-PI-R should take place in a cozy and quiet environment without external distraction. The examiner should begin by building rapport with and gaining full cooperation from the individual to be evaluated. The examiner should ask whether the examinee has any questions regarding the instrument or concerns about the

evaluation process. The examiner should also answer relevant questions, explain the nature and purpose of the assessment, and give feedback on the assessment if needed. Although the examinee is expected to have a reading level of 6th grade or above, the examiner can read the items to those who have limited reading abilities. The NEO-PI-R is one of the very few self-report personality inventories that allow the examiner to read the items to examinees, which is strongly discouraged or forbidden in most other self-report inventories.

Checking Protocol Validity

It is necessary to check the protocol validity of NEO-PI-R before scoring. Unlike many other multi-dimensional self-report personality inventories such as Minnesota Multiphasic Personality Inventory-2 (MMPI-2), the NEO-PI-R does not have built-in validity scales to detect possible response distortions (e.g. faking good or faking bad tendencies) and response inconsistencies. However, protocol validity can be assessed by examining the number of omitted items and the three validity check items at the bottom of the answer sheet. Scoring of the NEO-PI-R answer sheet should not proceed if more than 40 items have been omitted. Individual facet scales should not be scored if more than three items on that facet scale have been omitted.

The three items at the bottom of the answer sheet serve as validity checks. These questions ask if the examinee has answered all of the questions honestly and accurately, responded to all of the statements, and entered the responses in the correct area. Responses of *Disagree* or *Strongly Disagree* to the first validity check and *No* to the last validity check suggest protocol invalidity. If administered through computer, the computer generated NEO-PI-R interpretive report will include a check for consecutive and repetitive endorsement of the same response options, such as six responses of *Strongly Disagree* in a row, nine responses of *Disagree* in a row, 10 responses of *Neutral* in a row, 14 responses of *Agree* in a row, and nine responses of *Strongly Agree* in a row. All of these also suggest invalidity due to random responding. Furthermore, the sum of the numbers of *Agree* (*A*) and *Strongly Agree* (*SA*) responses can be used as an indication of the acquiescence bias. If the examinee has responded with *A* and *SA* options to more than 150 items, or responded with *A* and *SA* to less than 50 items, then acquiescence bias or naysaying bias may exist, and the NEO-PI-R should be interpreted more cautiously than when the five response options are more evenly distributed across the items. Another option to check the protocol validity of NEO-PI-R is to calculate the cross-observer validity coefficient, which involves use of both the Form S and Form R. The protocol validity can then be examined by the correlation between the responses on these two forms, one completed by the individual being evaluated and the other by his or her acquaintance.

It is recommended that the examiner scan the answer sheet for omitted items or double-marked items before the examinee leaves the evaluation. This is done so the examinee can be asked to complete the omitted items or make clarifications on the double-marked items. If responses to the three validity check items suggest protocol invalidity, reasons behind these responses should be explored and taken into account in further determining the protocol validity and interpreting the results. When invalid cases may be indicated in research settings, researchers are recommended to analyze the data separately, with the possible invalid cases included and excluded, and to compare these results. In clinical settings, clinicians

may still proceed with the interpretation but more cautiously. Use of Form R to obtain observer's ratings can be another option.

Scoring

Scoring of the NEO-PI-R is automatic if administered by computer. If the answer sheet is used to record examinee's responses, then their responses can be either entered into the computer program for scoring or hand scored. It is recommended to enter the responses twice into the computer for scoring to avoid data entry errors. The NEO-PI-R answer sheet provided by its publisher is a two-page carbonless answer sheet for self-scoring. However, before removing the top page, the examiner should first clear up the answer sheet by clearly marking the omitted or double-marked items so that these items will not be counted in scoring. Occasionally, the examinee may change their response on one item. When this happens, the examiner needs to clearly mark the response the examinee actually endorsed to ensure it will be counted in scoring. The second page of the answer sheet displays values associated with *SD*, *D*, *N*, *A*, or *SA* in rows and each row corresponds to one of the facet scales for each domain. The sum of the values associated with the marked responses yields the raw score for each facet scale and the sum of the raw scores of the six facets within a domain yields the raw score for that domain. The values assigned to *SD*, *D*, *N*, *A*, or *SA* are 0, 1, 2, 3, 4, or 4, 3, 2, 1, 0 when the item is keyed in reversed direction. There are eight items for each of the facet scales and therefore, the raw score range for each facet scale is 0–32 and the raw score range for a domain is 0–192.

Interpretation

General Guidelines and Cautions

A general guideline for interpretation of scores of a personality inventory is *never* to rely on the scores only. Instead, an examiner should always take into account all other information, such as protocol validity, reasons and purpose of assessment, examinee's motivation, observed emotional state, and behavior during assessment. This is particularly important for interpretation of NEO-PI-R because of its lack of validity scales to detect faking-good or faking-bad tendencies. Although not likely an issue in research settings when participants volunteer in the assessment and complete the inventory anonymously, response distortions are more likely to occur in settings that involve clinical, forensic, and personnel evaluations when individuals to be assessed may have a motivation to present themselves favorably or pathologically.

In spite of NEO-PI-R's significant usefulness in various settings reviewed in sections below, some cautions should be kept in mind while interpreting its results. First, the development of NEO-PI-R is based on research using normal adult samples and is intended to provide information on basic and general personality dimensions. In other words, NEO-PI-R is not a measure of psychopathology like the MMPI-2. Therefore, examiners who work in clinical settings should be cautious in making a highly pathological inference of a score. For example, a high score on Neuroticism should not by default be interpreted as psychopathology; rather, it may need to be viewed as a general dissatisfaction of life or a proneness to negative life affect.

Similarly, although high scores on some domains may seem to be more socially favorable and psychologically healthier, low scores on these domains do not necessarily suggest inadequacy and negativity. High or low scores on these domains should not be interpreted in a naïve manner as being positive or negative traits. For example, a low score on Extraversion should be viewed as an absence of extroversion traits rather than the opposite of extraversion that suggests a deficit or psychopathology. People with low scores on Extraversion should be considered reserved but not unfriendly. They may prefer to be alone but this does not mean they experience social anxiety. Also, although high scores on Openness suggest being open to various values, they do not necessarily imply these people are unprincipled or do not have their own values. It is important to keep in mind that the quality of these traits, either high or low, depends on the environment that an individual interacts with. People with high scores on the Agreeableness domain may find that being too agreeable is a challenge in situations where they must be independent and skeptical.

A third caution might be more applicable when interpretation of NEO-PI-R results is for comparison between two individuals. It is important to remember that two persons may have similar scores on a domain, but their scores on specific facet scales of the domain can be very different. Therefore, to obtain a comprehensive and accurate understanding of an individual based on his or her NEO-PI-R scores, it is important to examine both the domain scores and facet scores, particularly in clinical, educational, and career development settings.

General Interpretation Process

Once determined to be appropriate after assessing the protocol validity, interpretation of NEO-PI-R should begin with the scores on the five broad personality domains, following by scores on the specific facet scales within each of the domains. A T score is used to facilitate interpretation of NEO-PI-R. For both the domain scores and facet scale scores, a T score between 45 and 55 is regarded as *average*, whereas T scores below 45 are regarded as *low* and above 55 as *high*. T scores below 35 are regarded as *very low* and T scores above 65 as *very high*. The manual of NEO-PI-R provides descriptions of the personality traits for the domains and facets at these low and high levels. The raw scores can be plotted and transformed to T scores on normed profile sheets, which can then be interpreted in reference to NEO-PI-R manual as well as literature about the NEO-PI-R.

Computer-Generated Interpretive Report

As mentioned earlier, NEO-PI-R has the option of computer administration, scoring, and interpretation. The current NEO-PI-R software generates an interpretive report that includes the examinee's identifying information, a T-score profile displaying the examinee's standing on the five factors and 30 facet scales, and a table summarizing the raw scores and T scores in ranges of average, low, high, very low, or very high. The report also provides a global description of the five factors, followed by a detailed interpretation of the facets of these factors. Occasionally, interpretive statements at the factor level may be

inconsistent or even conflict with those at the facet level. In these situations, attention should be focused on the facet scales and their interpretations. Additionally, the report provides possible implications of the examinee's personality profile for their functions in coping and defense, somatic complaints, psychological well-being, cognitive processes, interpersonal characteristics, and needs and motives. However, it should be noted that these implications only give a sense of how this person may function in these areas and should *not* be viewed as direct measurements of these functions.

Lastly, the computer-generated interpretive report proposes clinical hypotheses regarding personality disorders and treatment implications based on the similarity of the examinee's profile to the prototypic profile of NEO -PI-R facets. These prototypic profiles are characterized with the facets that are consistent with the criteria of a personality disorder formulated in fourth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-IV*). However, it should be noted that information in this section of the interpretive report is intended for clinical populations only and should be interpreted in reference to other clinical information and evidence.

Again, consistent with the general guidelines described at the beginning of this section, information provided in this computer-generated NEO-PI-R report should be viewed as only one source of information and should be integrated with all other sources of information to reach professional decisions about the examinee. The report is intended for qualified professionals only and should not be released to the examinee.

Other NEO-PI-R Profiles

Many applications of NEO-PI-R require giving examinee feedback about their results on NEO-PI-R. In spite of the restrictiveness of releasing the standard interpretive report, NEO-PI-R has an option of generating a brief report named *Your NEO Summary* as a feedback sheet that can be released to examinees. This one-page brief report, in lay terms that are easy to understand, gives the examinee a general idea of his or her personality described along the five broad dimensions.

In addition to the above reports, other forms of NEO-PI-R profiles are available for the use of the NEO-PI-R in clinical settings, as well as settings of personal selection and career counseling and development. The NEO Job Profiler can be used to select employees by weighing a candidate's traits against the qualities needed for success in a given position. The *NEO Style Graph Booklet* presents graphs in an innovative way to show examinees how their particular personality domains interact with each other and form different areas of their personality. This booklet can be used in career planning and development. Apart from the personality disorder hypotheses and implications included in the standard interpretive report, the *NEO Problems in Living Checklist* offers additional information that can assist clinicians in planning treatment and assessing treatment progress.

Psychometric Properties

This section summarizes the psychometric properties of NEO-PI-R. Overall, these properties have been found to generalize across ages, cultures, and forms of measurement.

Reliability

For the five domains of NEO-PI-R, the internal consistency reliability coefficients for a college sample are 0.92 for both Neuroticism and Extraversion, 0.89 for both Openness and Agreeableness, and 0.93 for Conscientiousness. The manual reports similar internal consistency coefficients based on a non-college sample (n = 1,539), 0.92 for Neuroticism, 0.89 for Extraversion, 0.87 for Openness, 0.86 for Agreeableness, and 0.90 for Conscientiousness. The internal consistency coefficients for the facet scales ranged from 0.56 to 0.81 with Tender-Mindedness (A6) being the lowest (0.56) and Depression (N3) the highest (0.81). The test-retest reliability coefficients have been reported with different intervals. The NEO-PI-R manual reports test-retest reliability with a six-year interval as 0.83 for Neuroticism, 0.82 for Extraversion, 0.83 for Openness, 0.63 for Agreeableness, and 0.79 for Conscientiousness. One study reported test-retest reliabilities over a 10-year interval with a range of 0.78–0.85 for the five domains and 0.57–0.82 for facets scales. Another study on the short-term test-retest reliability over a one-week interval was 0.91–0.93 for the domains and 0.70–0.91 for facets scales.

Validity

With respect to validity of NEO-PI-R, the manual reports correlations between the NEO-PI-R domain and facets scores and scores obtained from other well-established personality assessments measuring similar constructs. The Introversion score measured by the Myers-Briggs Type Indicator (MBTI) has a correlation of −0.61 with the score of NEOPI-R's Warmth facet (E1), −0.59 with the Gregariousness facet (E2); MBTI's score on Intuition has a correlation of 0.43 with the NEO-PIR's Fantasy facet (O1) score and 0.56 with its Aesthetics facet (O2) score. In addition, NEO-PI-R's facets scores are correlated in the expected direction with some of the personality types measured by the Self-Directed Search (SDS), a commonly used personality assessment in career counseling and career development: 0.56 between the Aesthetic facet (O2) and SDS's Artistic type, 0.43 between Ideas facet (O5) and SDS's Investigative type, and 0.36 between Tender-Mindedness (A6) facet and SDS's Social type.

Consensual validity of NEO-PI-R has been supported by the strong correlation between self-report scores obtained through Form S and scores based on acquaintance's ratings using Form R. Criterion validity of NEO-PI-R has been established through identifying relationships of NEO-PI-R domain and facet scores with external criterion variables. For example, Conscientiousness was found to predict GPA of college students above and beyond SAT scores and significant relationships have been found between Neuroticism and emotional exhaustion, and between Agreeableness and personal accomplishment. Additional evidence for NEO-PI-R's criterion validity can be found in the review of similar findings in the next section.

Application of NEO-PI-R

NEO-PI-R in Research

NEO-PI-R, as well as other NEO inventories, has been widely used in research as well as in more applied settings such as clinical, educational, occupational, and industrial/organizational settings. One area of research in personality psychology involving

NEO-PI-R focuses on cross-sectional comparisons of the five-factor structure across different cultures, nations, gender, ages, and other demographic variables. NEO-PI-R has been translated into and validated for more than 40 languages and has been the most extensively used self-report instrument in cross-cultural studies. Overall, these findings support the universality of the five-factor structure across various cultures, nations, languages, ages, and gender. Therefore, NEO-PI-R, as a reliable and valid instrument for research, has made a significant contribution to the accumulation of empirical evidence for FFM and the consolidation of FFM as a leading model in personality research.

While the five-factor structure may be everywhere for everyone, there are gender and age differences with respect to levels on certain factors. Older adults are lower in Neuroticism, Extraversion, and Openness, and higher in Agreeableness and Conscientiousness than younger adults. Adult females are overall higher in all of the five factors than adult males. More importantly, this pattern of differences, though small, has been found to be very similar across different cultures and societies. This may have challenged some of the traditionally presumed hypotheses regarding the environmental, social, and cultural influences on the development of personality. In the field of personality psychology, it has generally been believed that personality is shaped a great deal by contextual factors such as historical experiences of different generations, parenting styles, socialization, and other early life experiences. However, if this is true, then different patterns of the age and gender differences would be observed across different cultures and societies. The consistent findings of age and gender differences on FFM factors across cultures suggest these differences might be more due to biological reasons, such as maturation, than contextual variables.

Another area of research focuses on the use of NEO-PI-R to identify factors or facet traits that may predict certain outcome variables, particularly in industrial/organization (I/O) psychology. Indeed, the personality trait model has facilitated significant advances in I/O psychology's inquiry of determinants of work outcomes. Thus, the NEO-PI-R has been most frequently used as an important tool to identify personality traits, at both the broad domain level and the specific facet level, which can predict job performance, occupational safety, leadership, management, and other vocational behaviors. Research has found all the five factors are highly relevant to many outcome variables in I/O psychology. Among them, Conscientiousness has been the primary focus of attention and has been identified as an important predictor of job performance for various types of occupations. Openness has been found to predict learning and training outcomes and job performance where adaption to change is required. Positive relationships have been identified between Extraversion and leadership as well as effective job interviews. Agreeableness predicts teamwork, quality of customer service, and interpersonal facilitation. Putting all of these findings together, Conscientiousness, Openness, Extraversion, and Agreeableness appear to be important factors predicting job satisfaction while Neuroticism predicts job dissatisfaction and occupational stress and burnout.

In the area of research on career development and career counseling, NEO-PI-R has been used to identify factors and facet traits that are associated with academic and occupational success in certain majors and occupations. For example, high score in Conscientiousness may indicate academic success in chemistry and accounting while

high score in Openness may indicate success in philosophy and literature. People with high scores on Extraversion and Agreeableness may be more satisfied and successful with occupations that involve a great deal of interpersonal interactions such as sales, teaching, and tutoring, rather than with occupations that require a lot of time being alone, where people with low scores on these domains may feel more comfortable and satisfied.

In recent years, increasing attention has been paid to NEO-PI-R for use in clinical research. With the NEO-PI-R, an increasing number of studies has found the clinical relevance of the FFM domains and their facet traits to psychopathology such as depression and personality disorders. One potential clinical application of NEO-PI-R is to provide information regarding diagnosis of personality disorders. The current fifth edition of *Diagnostic and Statistical Manual of Mental Disorders* (*DSM-V*) proposes an alternative personality trait model for personality disorders that specifically focuses on personality functions and pathological personality traits. *DSM-V* defines personality functioning in terms of self (i.e. identity and self-direction) and interpersonal (i.e. empathy and intimacy) aspects. The pathological personality traits consist of five broad domains: Negative Affectivity (vs. Emotional Stability), Detachment (vs. Extraversion), Antagonism (vs. Agreeableness), Disinhibition (vs. Conscientiousness), and Psychoticism (vs. Lucidity). Indeed, these traits are nicely aligned to the maladaptive aspects of the five factors in FFM. These five pathological trait domains consist of subsets of 25 specific trait facets that are clinically relevant to personality disorders. Apparently, there has been a good fit between FFM and *DSM-V*'s alternative personality trait model of personality disorder. NEO-PI-R has been used as a major measurement in the majority of studies to identity the traits related to personality disorders. It also plays an important role in the operationalization of alternative trait model of personality disorder and will continue to be a useful tool in empirical research as well as in accurately diagnosing these personality disorders. Many of the most recent studies on FFM and personality disorders, as well as use of NEO-PI-R to evaluate the pathological traits, have been published in the third edition of *Personality Disorders and the Five-Factor Model of Personality*, edited by Thomas Widiger and Paul Costa, Jr., which was published by the American Psychological Association in 2013.

NEO-PI-R in Practice

Application of the NEO-PI-R in the above-mentioned research areas has yielded findings that not only support the predictive and criterion validity of the NEO-PI-R, but also have important implications for practice in their corresponding applied fields. Educationally, NEO-PI-R can be used in academic advising to help students understand their traits that may facilitate or impede their academic success with their selected majors. In career counseling, it can be used to help clients develop career choices that are congruent with their traits and help them make more effective career decisions. NEO-PI-R can also be used to help clients understand the strengths and challenges of their traits given the occupations of their interest. In industrial and organizational settings, NEO-PI-R can be used in personnel selection and human resource management.

Although NEO-PI-R has been increasingly used in clinical research, its potentiality in clinical practice has yet to be explored. The relative limited application of NEO-PI-R in clinical practice is in part due to its lack of validity scales to detect response distortions that might be more likely in clinical settings than non-clinical settings. Another reason is that the NEO-PI-R has been described as a measurement of normal personality and is often mistakenly limited to use with normal populations only. However, it is important to keep it in mind that NEO-PI-R is a measure of general personality which can be used with everyone, not only those with normal personalities, but also those with various forms of psychopathology.

NEO-PI-R can be used in clinical practice to facilitate understanding clients, making an accurate diagnosis, and providing appropriate interventions. Indeed, NEO-PI-R may have several advantages over other more frequently used assessment in clinical practice. First, the information NEO-PI-R provides is non-pathological which can balance the heavy focus on psychopathology in most of the assessment tools in clinical settings. Second, administration of the NEO-PI-R has a strong emphasis on building rapport with patients, which will facilitate treatments given that working alliance has been found to be a robust common factor for effective interventions regardless of their underlying theoretical orientations. Third, NEO-PI-R can provide information on the strengths of the patients that can be inferred from their traits. This information will facilitate the integration of treatment of the psychopathology with other strength-based interventions such as education and career counseling. Such integration is in line with the positive psychology movement in clinical settings. Lastly, use of Form R of NEO-PI-R, which can be completed by a family member, can facilitate the involvement of family members in treatment. The Form R might be particularly useful in couples' therapy because it can help to illustrate the discrepancies of their perceptions of each other's traits and facilitate effective communication between the two.

NEO-PI-R can also be a useful tool in integrated healthcare, a recent movement that promotes the integration of psychological services to healthcare in medical settings. This instrument can help to identify patients' personality traits that may have an impact on their medical conditions. High scores on Neuroticism may suggest a predisposition to distress and its possible impact on a patient's medical conditions. NEO-PI-R can help to identify a patient's personality traits that may facilitate or impede treatment of his or her medical conditions. For example, patients with high scores on Conscientiousness may be more likely to follow through the treatment, particularly those involving long-term and complex procedures.

Critiques of NEO-PI-R

Lack of built-in standard validity scales is probably the criticism that the NEO-PI-R has received the most and is probably the main reason for its limited application in clinical settings. One drawback that all self-report personality inventories share is the response distortion due to social desirability or malingering, which compromise the validity of these instruments. Therefore, many self-reported instruments have built-in validity scales to detect these distortions. For example, the MMPI-2 has several empirically developed

validity scales; the basic validity scales include the *L* (Lie) scale to detect self-favorable tendency, the *K* (Correction) scale to detect those whose psychopathology can be embedded in a normal profile, and the *F* (Infrequency) scale to detect self-unfavorable tendency. Analyzing the configurations of these validity scales can effectively detect response distortions such as faking good or faking bad. However, this is not the case for the NEO-PI-R, probably because this instrument was originally developed for use with normal populations for whom response distortion may not be a concern. Perhaps its potentiality for use with populations with psychopathology was not recognized when the original NEO inventory was developed. NEO-PI-R does have three validity check items, but they might be too obtrusive and individuals who intend to distort will be able to easily manipulate their responses to these items so the distortion will not be revealed. Therefore, without the assistance of standard validity scales, an examiner's decision on protocol validity is more likely subject to bias.

To address this limitation, researchers have developed some validity scales from NEO-PI-R's own item pool to assess common response distortions such as tendencies to present oneself in an overly positive or negative manner, and response inconsistency. These validity scales have been found to be effective at identifying participants instructed to present themselves positively or negatively. However, the validity and usefulness of these validity scales may depend on the specific purposes and populations for which the NEO-PI-R is being used. Studies suggested that, in research settings where a large number of participants are assessed, use of these validity scales to remove invalid protocols may not influence the results. However, in clinical settings, removal of invalid profiles based on these validity scales can increase the correlations between NEO-PI-R scores and the outcome variables that are presumably predicted by the scores. Apparently, validity issues in application of NEO-PI-R, particularly in clinical populations, will continue to be the focus of research.

See Also

Factor Analysis in Personality Research
Lewis Goldberg
Goldberg vs Costa/Mccrae Five Factors
Paul T. Costa, Jr.
Robert McCrae

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Zuckerman-Kuhlman Personality Questionnaire (ZKPQ)

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Personality can only be assessed through questionnaires and measures because the traits are a personal reflection and are not exhibited through any physical change. Through years of research and growth there have been multiple developments in the personality questionnaires being used. While preparing to write his book *Psychobiology of Personality*, Marvin Zuckerman realized that biological and genetic bases of personality traits were not available and alongside his colleagues he set out to develop an alternative five factor model to measure personality or temperament. In identifying the five basic personality traits, Zuckerman looked to those with a strong biological-evolutionary basis. Zuckerman was able to identify these five innate factors by administering pre-existing personality questionnaires such as the Sensation Seeking Scale, Biological Basis of Personality, and Big Five to research participants on a large scale. The results of these questionnaires and personal reports were subjected to a classical factor analysis to identify the innate factors that are the core of an individual's personality. To develop what would later become the most widely used personality questionnaire, Zuckerman and his team selected 46 scales from eight random questionnaires to represent the hypothesized factors. To account for the probable hierarchical nature of the structure the results were tested on multiple factor levels. After careful sampling of the postulated traits on large samples, the factor analyses yielded a robust five-factor structure that offered maximum specificity and factor reliability in both male and female subjects.

The Development of the Five Factors

Zuckerman and his associates wanted to identify the biological factors of personality. When analyzing the data of other personality questionnaires used in psychobiological research, they looked for scales that could be found across human and non-human species.

The psychobiological based personality traits of the alternative five were identified, and those factors are now established in the Zuckerman-Kuhlman Personality Questionnaire (ZKPQ). The five constructs that are measured in the ZKPQ are Impulsive Sensation Seeking (ImpSS), Neuroticism-Anxiety (N-Anx), Aggression-Hostility (Agg-Host), Sociability (Sy), and Activity (Act) components. The entire questionnaire can be completed in about 20 minutes at most and consists of 99 true-false items. There is a 10 item validity scale to eliminate any individual reports that are influenced by extreme social desirability. The other 89 items represent each of the factors based on high correlations with the factor and lower correlations with other factors.

Impulsive Sensation Seeking

The Impulsive Sensation Seeking Scale (ImpSS) has 19 items and looks at risky and thrill-seeking behaviors as well as lack of planning and acting on impulse. This scale has been shown to have many biological correlates and was an original development of Zuckerman. Each of the 19 items is either impulse or sensation seeking driven and they measure the extent to which each person displays such qualities. The Impulsive Sensation Seeking Scale that was developed in the ZKPQ replaced specific activities, such as inappropriate speeding and other driving tactics that put oneself in physical and/or legal harm, with more generalized ones. Novelty and intensity of the activity are important but not the whole story. High-sensation seekers usually drive more recklessly than their low-sensation seeker counterparts. Zuckerman has worked on evolving the sensation seeking construct for over 50 years in order to eliminate confounding in studies where people might engage in one or another of these activities. The Sensation Seeking Scale looks to measure the following variables: Thrill and Adventure Seeking, Experience Seeking, Disinhibition, and Boredom Susceptibility. The Sensation Seeking Scale that Zuckerman has developed throughout the years remains one of the most widely used of the sensation seeking scales. The structure of the Western-based Sensation Seeking Scale has seen success in its replications and across multiple countries and cultures.

Neuroticism-Anxiety

The Neuroticism-Anxiety Scale (N-Anx) within the personality questionnaire has 19 items that ask you to explain how you feel, if you have trouble with various circumstances, and if you tend to react specifically to various interactions with others. These items ask the person to describe their level of emotional upset and tension such as whether you feel edgy and tense. Of the 19 items, a number of them also touch on worry, fearfulness, and obsessive indecision by asking whether the person has trouble making decisions. Lastly, the items question whether you tend to be sensitive or hurt by the thoughtless actions or comments of others in order to gauge a person's lack of self-confidence and sensitivity to criticism. It is through these items that Zuckerman is able to look at the fear and worry aspects of a person's personality.

Aggression-Hostility

The Aggression-Hostility Scale (Agg-Host) is 17 items and reflects on one's readiness to express aggressive and hostile verbalizations or behavior. This scale also seeks to discover whether a person has a quick temper or irregular impatience toward others. For verbal aggressions, one of the items asks whether cursing is a common verbal response when one is mad. Another item asks whether you feel the need to express how you feel toward people even if it is negative. Lastly, items focus on the person's temper asking if you cannot help but get into arguments when people disagree with you.

Sociability

The Sociability Scale (Sy) is 17 items. The items focus on two factors in order to measure a person's sociability. The first factor is a group of items that look at the liking of big parties and lots of friends. The second factor is measured through a group of items that indicate both an intolerance for social isolation in subjects that enjoy being social as well as a tolerance for isolation in subjects who feel comfortable being unsocial.

Activity

The Activity Scale (Act) is 17 items and looks at two factors as well, whether you feel restless when there is nothing to do and whether you have a preference for challenging and hard work. To measure these items questions are asked such as "I like to keep busy all the time" or "I like a challenging task more than a routine one."

Including the five measurable personality scales there are also 10 items that measure infrequency. These items are used to eliminate subjects with scores that may result in invalid records. These 10 items are most true scored and if they are endorsed they indicate exaggerated socially desirable content that is unlikely to be true. If the subject scores higher than a 3 than their validity is considered arguable.

Validity of the Five Factors

Furthermore, the internal reliability within all of the scales is good with most alphas of each scale ranging between .70 and .80. Of all the scales the highest reliabilities across all samples were found in the N-Anx measure with both males and females. The ZKPQ has shown to be reliable in what it claims for different areas such as drug abuse, sex, gambling, and sports. The five scales within the questionnaire revealed moderate to high correlations to ratings by family and friends. Compared to other popular personality measures, the ZKPQ was able to show good construct and discriminant validity in four of the five scales revealing a high reliability rating. So much so that the ZKPQ has been used to measure personality disorders among the general population. Over the development and issuing of the personality assessment, some areas of improvement began to surface and the re-development of the Zuckerman-Kuhlman Personality Questionnaire began.

The Development of the Zuckerman-Kuhlman-Aluja Personality Questionnaire

Research in the field of personality suggested that facets provide better predictive validity in determining behavior when compared to only looking at higher-order traits. While the ZKPQ was originally developed without facets it was revealed that two factors were found consistent within three of the original measures. The Impulsive Sensation Seeking Scale contained impulsivity and sensation seeking factors. The Sociability Scale did account mainly for sociability, but an intolerance of isolation factor was also present; and the Activity Scale included a need for general activity that encompassed impatience and restlessness and need for work activity including energy for work and life's other activities. The variation that was unveiled determined that the five factors were clearly not adequate to distinguish among facets within the traits. Another development that came with the new instrument of personality was the change from a true-false to a four-category, Likert-type response scale. There were two stages in the development of the new instrument; the first was to define the likely candidate facets that could be theoretically related to the original five ZKPQ factors and the second was to determine the consistency of the facets to the factors and vice versa. The new test was named the Zuckerman-Kuhlman-Aluja Personality Questionnaire (ZKA-PQ) to recognize the major role of A. Aluja and to acknowledge it as a new measure.

Directions for Future Research

While the development of the ZKPQ began in the 1980s, its effectiveness and popularity as a personality measure have remained monumental within the field. The Five Factor Model is one of the only personality measurements with a psychobiological basis and thus makes it a new development in the field. The easy availability of the ZKPQ allows interested researchers the opportunity to analyze personality through the instrument especially in fields with a strong biological background. Major developments of the ZKPQ in translated scales such as German, Spanish, Catalan, Japanese, and Chinese have shown impressive internal and factor reliability and further translations are also an area of continued growth for the scale. While the model is evolving, illustrated through the development of the ZKA-PQ, there is still much more research needed to develop the model to its fullest potential.

See Also

Aggression, Personality Correlates
Big Five
Neuroticism
Sensation Seeking

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Projective Techniques, General Features and Methodological Issues

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Projection, a classical Freudian defense mechanism, protects the ego from anxiety arising from unconscious intrapsychic conflicts. To maintain psychological safety, undesirable characteristics of one's own are attributed to others such as when an unfaithful husband accuses his spouse of having an affair. While being a normal ego function operating outside of conscious awareness, projection is a relatively immature defense. Developmentally, projection as a coping strategy follows denial and is active from age[6–8] until late adolescence.

Projection and Personality Assessment

While recognizing its unconscious status, personality researchers and clinicians view projection as the influence of intrapsychic factors in the interpretation of external stimuli including interpersonal situations. Personally significant memories, fantasies, wishes, and emotions are often unknowingly activated in many life contexts. Proponents of projective testing believe that standardized tests involving ambiguous stimuli and open-ended responses elicit this content without the test taker's awareness allowing "privileged access" to otherwise well-protected material held at bay by defenses (Wood, Nezworski, Lilienfeld, & Garb, 2003). In his description of the benefits of the Thematic Apperception Test, Henry Murray described unwitting test takers who believed that the ambiguous pictures assessed creativity while not recognizing the psychodynamic significance of their responses: "As a rule, the subject leaves the test happily unaware that he has presented the psychologist with what amounts to an x-ray of his inner self" (Murray, 1943 cited in Lemov, 2011, p. 261).

Projective methods are typically presented as alternatives or complements to objective personality tests with predetermined dichotomous response option (e.g. yes-no; true-false) such as the MMPI or Myers-Briggs Type Indicator. Projective methods such as the Thematic Apperception Test (TAT), Draw-a-Person, and Rorschach instruct participants to generate their own answers with minimal guidance. However, the distinction between objective and

projective assessment may be more apparent than real. As a universal process, projection is not confined to responses to Rorschach or TAT cards but also occurs as response bias or idiosyncratic interpretation of seemingly "objective" cognitive or personality tests. For example, projective scoring methods have been applied to the Wechsler Adult Intelligence Scale (WAIS). On the WAIS Picture Arrangement subtest, patients with borderline personality significantly differed from a non-clinical sample on several dimensions such as "episode integration," reflecting the ability to logically describe interpersonal situations.

Administration and Interpretation of Projective Tasks

However, while responses vary considerably, projective test administration is standardized and has been analogized to an N = 1 experiment. Projective testing is governed by standardized procedures for administration – often including seating arrangements, the wording of instructions as well as a protocol for recording participants' responses.

This standardization ends with test administration. Interpretations of projective data are much more variable ranging from converting verbal narratives to quantitative scores to hermeneutic text interpretation. Historically, projective test data have been viewed as idiographic versus nomothetic with the goal of describing an individual in-depth rather than comparing test responses with pre-existing norms. Personality theorists and researchers differ in their views of the intrapsychic processes activated in projection. The projective process has been described as a visual perceptual mnemonic phenomenon, an unconscious attribution of impulses, wishes, and attitudes through a narrative response to external stimuli, and a symbolic representation of experiences with early caregivers and current intimate relationships.

Projection as a Perpetual-Cognitive Process

Rorschach originally emphasized the perceptual demands of responding to his ink blots – namely the ability to interpret "accidental shapes." Once the percept is registered, the ambiguous stimulus initiates a complex cascade of cognitive processes including a retrospective memory search attempting to locate mnemonic representations of similar visual stimuli which are perceptually integrated. With the activation of mnemonic networks, related semantic and/or visual memories are elicited. As the projective stimulus becomes more ambiguous, personalized reactions and the priming value of the external image are likely to correspondingly increase.

Further support for projection's cognitive demands is found in research in which standardized testing conditions are slightly altered. When the inkblots are administered by someone known to the participant, the number of responses generated is often greater than with a previously unknown examiner. When the instructional set for the Rorschach is changed so that respondents are given the directive to name everything that could be possibly be seen in the blots, the total number of responses may increase three-fold. These data suggest that projection is a complex social cognitive process involving perceptual organization, memory, selection of a response, and verbal explanation.

The principal value of projective tests such as the Rorschach may lie in their assessment of cognitive-perceptual abilities. Within Exner's Comprehensive System, the indices with

strongest support assessed perceptual-cognitive processes rather than measures associated with specific diagnoses or defenses. In clinical samples, the Rorschach Performance Assessment System variables, psychological complexity, assessing the ability to cognitively organize one's environment, and problem solving, demonstrated the strongest associations with measures of psychopathology and neuropsychological functioning.

Projection as Self-Narrative

McAdams (2008) notes that the TAT was a forerunner of the contemporary emphasis on understanding personality through personally constructed, evolving narratives. At the core of personality is a narrative generated to describe life's trajectory. Beginning in early adulthood, this narrative is developed to provide "thematic coherence" including an overarching life direction. While not developing the narrative personality theory to the extent of recent scholars, TAT research suggests that this projective task elicits key aspects of the respondent's life story.

In contrast to impersonal ink blots, Murray believed that familiar visual stimuli evoked a more meaningful and interpretable fund of unconscious material (Miller, 2015). Through stories, individuals unknowingly reveal their attitudes, fears, desires, and views of important relationships (Miller, 2015). Importantly, these accounts have a type of "subjective validity" since interpersonal behavior, ultimately, is interpretive; objectivity is not possible (Miller, 2015).

In developing the TAT with Christiana Morgan, Murray was heavily influenced by classic literature. As a scholar of Herman Melville, Murray analogized the process of telling stories about cards depicting people in ambiguous situations to an "autobiographical novel." Murray believed that "... apperception, was the largely unconscious and inarticulate intrusion of affections and images evoked by objective facts which work by a non-logical inference" (Miller, 2015, p. 17) comparable to a novel.

Projective test data typically acquire meaning through the new story generated through the assessor's interpretation. The fact that two clinicians might interpret the projective narrative differently may be analogous to a medical "second opinion" (Miller, 2015). The richness of projective analysis becomes a product of the triangulation of the participant's story with the narrative provided by two distinct psychological interpretations.

Murray also believed that, depending on the story teller's unconscious conflicts, the process of narrative generation (i.e. how the story is told) also revealed information about cognitive organization, logical reasoning, and emotional regulation (Miller, 2015). Certain pictures would likely have greater power to stimulate personally important unconscious conflicts. Once activated by the stimulus card, the emotion associated with these unrecognized tensions would disrupt the ability to relate a coherent narrative and instead, contribute to tangential, fragmented and illogical stories and at a subtler level, impaired syntax and grammar.

Object Relations and Projection

It is commonly believed that TAT stories provide insight into the subject's view of current important relationships. Object relations theorists emphasize that current relationship behavior is derived from unconscious "working models" of important others developed in

early childhood. Since development of these interpersonal schema begins prior to language acquisition, these internalized models unconsciously influence perceptions of intimate adult relationships. Research over the past two decades supports the concept of adult attachment styles mirroring the secure, anxious, and avoidant styles originally described by Ainsworth and Bell.

From the perspective of projection, these unconscious models and their associated emotions are likely to be activated in interpreting ambiguous stimuli – particularly when human interaction is perceived. To assess these internalized objects, multidimensional scoring systems have been developed for projective tests. Operationalizing object relations projections has contributed to a more detailed definition of these internalized interpersonal representations and their influence on subjective interpretation of relationships: "...the term object relations refers to a congeries of cognitive and affective functions and structures, including ways of representing people and relationships, rules of inference for interpreting the causes of people's feelings, behaviors, interpersonal wishes, [and] conflicts" (Westen, Lohr, Silk, Gold, & Kerber, 1990, p. 355).

The Concept of the Object Scale (CORS) developed by Blatt and colleagues is a multidimensional scoring method applied to Rorschach responses involving humans. After assessing its perceptual accuracy, the response is evaluated on a developmentally based scale including level of attributed motivation, type of action, and whether interactions between human percepts are active or passive. Correlations with psychopathology and other measures of relatedness suggest that the CORS index has construct validity.

A similar quantitative object relations framework has been applied to the TAT. Again, the assumption is that responses to the ambiguous pictures are projections of the subject's internalized multifaceted object representations. Responses are rated on a 5-point scale for complexity of representations of people, emotion attributed to the human characters in the narrative, capacity for investment in others and mutuality of relationships, and appropriate understanding of others' intentions (Westen et al., 1990). Criterion validity for this scoring system is supported by findings that persons with borderline personality disorder score significantly lower on all four TAT dimensions than non-clinical samples and the convergence of these subscales with interview data (Westen et al., 1990).

Projective Assessment: Critiques

Projective methods have been seriously challenged on both conceptual and psychometric grounds. Projective tests have often been found to fall short of acceptable reliability and validity standards associated with objective nomothetic measures. Historically, projective tests have been plagued by fundamental validity problems such as illusory correlations (e.g. drawing a person with an unusually large head indicates concern about one's intelligence). Even Exner's empirically supported Rorschach method has psychometric limitations with only about half of the Comprehensive System's variables demonstrating acceptable interscorer reliability. Some of Exner's diagnostic Rorschach indices demonstrate criterion validity by distinguishing between clinical and non-clinical samples. However, this actuarial method renders the subjectively rich "x-ray of the unconscious" moot by reducing the subject's narrative responses to statistics.

The Future of Projection in Personality

Functional MRI studies have found neurophysiological correlates for suppression, repression, conversion, and dissociation. Recent biopsychological research suggests that projection may be associated with hormones such as testosterone and specific patterns of neural activity. Frontal and parietal brain activation in the context of greater activation of the primary somatosensory cortex was recently found for subjects asked to describe ambiguous visual stimuli. As has been found for other psychodynamic concepts, projection is likely to have an underlying neurocognitive basis – leading to a new definition of this complex process.

See Also

Rorschach Test
Thematic Apperception Test
Unconscious Processes
Unconscious Processes, Expression of Personality Process

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Assessing Implicit Motives

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Examining the assessment of implicit motives involves describing techniques used to assess implicit motives, their reliability, and their validity. One principal type of implicit motives test is the Picture-Story-Exercise, which is derived in part from the Thematic Apperception Test – part of a broader class of projective instruments that presumably enable the scorer to assess individuals' dispositions and needs based upon their reactions to ambiguous stimuli. The second principal type is the Implicit Association Test, which is based on relatively contemporary theories of information processing. In particular, the rationale for this latter test is that much of an individual's attitudes and motives are automatic (i.e. outside of conscious awareness and control) and cannot be measured by standard objective tests.

Picture-Story-Exercise

The assessment of individual differences in implicit motives has its origins in the Thematic Apperception Test (TAT) developed by Murray (1943), and refined by McLelland and colleagues (see, e.g. McClelland, Koestner, & Weinberger, 1989). The Picture-Story-Exercise (PSE) developed by McClelland and colleagues aims to measure motives of which individuals are unaware, such as the need for achievement, affiliation, and power. The PSE utilizes a mixture of approximately eight cards from the original TAT and from other sources (see Lilienfield, Wood, & Garb, 2000 for an overview). Respondents write stories for each picture, and those responses are scored by independent raters for content indicating such motives as achievement, power, and affiliation. The current PSE uses eight cards (e.g. Schultheiss, Liening, & Schad, 2008), and is scored based on respondents' description of the actions of the story characters associated with each picture. Need for power is scored whenever respondents use imagery that indicates forceful actions, or in some way controlling or influencing the emotions of others. Need for achievement is scored whenever respondents use imagery suggesting concern with excellence and performance,

in particular successes and failures. Need for affiliation is scored whenever respondents use imagery associated with maintaining or restoring friendly relations.

The literature on the reliability of the PSE suggests that the instrument shows low internal consistency and test-retest reliability (see Lilienfield et al., 2000). For example, internal consistency typically does not exceed a Cronbach's alpha of .40, and test-retest reliability rarely exceeds .30 (Lilienfield et al., 2000). Inter-rater reliability is generally higher (see e.g. Schultheiss et al., 2008). One proposed alternative measure of reliability is to use ipsative stability, in which the consistency of each individual's profile across stories is measured (Schultheiss et al., 2008). If individual respondents score consistently on need for achievement, power, and affiliation across stories, the PSE can be considered a reliable instrument according to Schultheiss et al. (2008). Preliminary findings suggested that ipsative stability measured sufficiently high relative to other measures of reliability (Schultheiss et al, 2008).

There are also some questions regarding the validity of the PSE. Early research showed low correlations between scores on the PSE and more explicit measures of need for achievement, power, and affiliation (Lilienfield et al., 2000). McLelland and colleagues argued that the lack of correlation was due to each instrument measuring different facets of the constructs in question. Respondents' scores on explicit measures of motives such as achievement are presumed to be driven by short-term concerns and external stimuli, whereas scores on the PSE served as indicators of more long-term motivation and make some statement about predictive validity here (Lilienfield et al., 2000). Correlations with tangible behavioral outcomes such as occupational or school success have generally been around .20, which is not much higher than scores found using equivalent objective measures of need for achievement, power, and affiliation (e.g. Spangler, 1992).

Implicit Association Test

The Implicit Association Test (IAT) was developed approximately two decades ago (Greenwald & Banaji, 1995). The test is administered by presenting respondents with a series of words or pictures on a computer monitor, and instructing respondents to press one key with the left hand if each picture or word corresponds to one decision rule or to press the right hand if the picture or word conforms to another rule. The developers of the IAT argued that respondents would more rapidly press the key for items stereotypically associated with a stereotype for a specific group than they would for items countering the stereotype. In doing so, respondents would be acting outside of conscious awareness or control. A similar approach is used to measure implicit prejudice by having respondents press a key for both positive words and images of faces in one group and pressing another key for both negative words and images of faces in another group. A non-conscious bias toward a group of people may be detected by how quick respondents' reaction times are to negative words and exemplars of the targeted group versus reaction times to positive words and exemplars of the targeted group. Individuals reacting more rapidly to the former pairing are considered to show more non-conscious prejudice (Greenwald, McGhee, & Schwartz, 1998). Versions of the IAT have been used to detect individual differences in implicit prejudice toward African Americans, the elderly, and women, for example.

As with other measures of non-conscious motives, there are concerns regarding the reliability of the IAT. One concern has to do with internal consistency. In general, the internal consistency of the IAT, as measured by Cronbach's alpha, is somewhat low at around .60 (Nosek, Greenwald, & Banaji, 2005). Recall that ideally researchers consider a test reliable when alpha is at .70 or higher. Hence, there appears to be considerable measurement error in the IAT as it is currently designed. The other concern regards the IAT's test-retest reliability. In general, test-retest reliability is low for the IAT, with test-retest indices typically at .60 (Nosek et al., 2005). Respondents who take an IAT more than once may receive noticeably different scores. The correlation between IAT scores at initial testing and IAT scores during subsequent testing is generally lower than considered adequate, suggesting that the IAT is affected by situational cues, and may not be measuring stable individual differences.

Proponents of the IAT contend that the test shows high construct validity. Critics contend that the IAT is more of a measure of cultural knowledge than of respondents' own implicit biases or prejudice. The IAT tends to correlate weakly with other related explicit attitude tests (e.g. Phelps, O'Connor, Cunningham, Funayama, Gatenby, Gore, & Banaji, 2000). Proponents argue that the IAT measures non-conscious attitudes whereas more explicit attitude tests can be influenced by factors such as social desirability, which is similar to the argument made by the developers and proponents of the Picture-Story-Exercise. There is some controversy about the predictive validity of the IAT. Early reports suggested that IAT results consistently predicted relevant behavioral outcomes. Much of the available research focused on the IAT developed to test implicit racial prejudice and discrimination. Initial findings indicated that the IAT appeared to predict discrimination. More recently the predictive validity of the IAT has come into question, with some meta-analytic evidence suggesting that the IAT is a valid predictor of individual variation on various behavioral measures of discrimination (e.g. Greenwald, Banaji, & Nosek, 2015; Greenwald, Poehlman, Uhlmann, & Banaji, 2009) and other meta-analytic evidence suggesting that IAT results do not adequately predict individual variation in discrimination (e.g. Oswald, Mitchell, Blanchard, Jaccard, & Tetlock, 2013).

Conclusions

In summary, although implicit motives tests have been in use for decades and are still generating considerable interest in the psychological literature, there are still questions about the reliability of these tests and their utility in predicting tangible behavioral outcomes.

See Also

Motivation (Achievement, Affiliation, Power)
Projection Techniques, General Features and Methodological Issues
Reliability, Issues of
Rorschach Test
Tell-Me-A-Story (TEMAS)

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The Rorschach Test

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The History of the Rorschach

The Rorschach Inkblot Test is based on the work of Hermann Rorschach. Rorschach was a Swiss-born physician who professionally identified himself primarily as a clinical researcher rather than a clinical practitioner (Ellenberger, 1954). As a young child, Rorschach was said to be intrigued by a popular game called *Klecksographie*, which required players to either make or collect inkblot cards and then make associations and stories based on their collection of those cards. The goal of this game was essentially to develop the most complex plot to explain the design and arrangement of the inkblots accumulated. Rorschach's affection for this game was so great, in fact, that it is said that his nickname actually became "Klec" (Ellenburger, 1954; Rose, Kaser-Boyd, & Maloney, 2001; Schneider, 2001).

As a young adult, Rorschach decided to pursue the study of medicine, completing a psychiatric residency at the Munsterlingen Mental Hospital in Russia between the years of 1909 and 1913 (Pichot, 1984). During this placement, Rorschach became interested in the diagnosis of schizophrenia. It was Rorschach's contention that both functional and dysfunctional perceptual processes were correlated with aspects of the human psyche (Rorschach, 1921; Schwarz, 1996). Given the high prevalence of disordered thoughts and perceptions associated with schizophrenia, Rorschach decided to research how these symptoms reflected on the psyche of those with the diagnosis (Schwarz, 1996).

Perhaps due, in part, to his enchantment with *Klecksographie*, Rorschach maintained a strong interest in the potential for projective tests within a medical environment (Rose et al., 2001). Most notably, he was highly influenced by Carl Jung's Word Association Test. Rorschach's interest in Jung's work is somewhat unsurprising given his fascination with psychoanalysis and the fact that he studied for some time under psychiatrist Eugen Bleuler, Jung's mentor (Pichot, 1984; Rose et al., 2001; Schwarz, 1996). Rorschach believed that projective tests could be leveraged to better understand the psychological profiles associated with various groups of people. He asserted that each group of people would endorse different perceptual patterns leading to a perceptual profile of sorts for that particular

group (Rorschach, 1921; Schwarz, 1996; Searls, 2017). For example, he conducted tests using inkblots to examine the imaginative abilities of more gifted students in comparison to less gifted students. Rorschach suggested that the use of inkblot testing might be useful in better understanding psychosis as well. During his residency at Munsterlingen, he examined the responses given by those with schizophrenia on Jung's Word Association Test and compared those responses with the same individuals' responses to his own inkblot assessment. While the results of each assessment did not perfectly align, he noted a great deal of overlap between the two, suggesting to Rorschach that his method of assessing perceptual processes may be worth pursuing (Rose et al., 2001; Schwarz, 1996)

While the Rorschach test is likely the most famous projective test incorporating a series of inkblots, Hermann Rorschach was certainly not the first researcher to use this technique. There is reference within the literature suggesting that the exploration of ambiguous designs as one way to gain insight into a person's psyche goes as far back as the great Renaissance man, Leonardo da Vinci (Searls, 2017). Kerner conducted the first known formalized examination regarding the use of the inkblot technique, however, in 1857. He indicated that the presentation of ambiguous inkblots could lend insight to an examinee's imagination. Kerner's observations also led to the publication of a text composed of a collection of poems, each inspired by a separate inkblot (Schiller, 1993; Searls, 2017). In 1895, Alfred Binet began using inkblots in his larger efforts to study the nature of intelligence. Like Kerner before him, Binet suggested that inkblots might provide some insight into examinees' imaginative processes (Nicholas, Coubart & Lupart, 2014). Two years later, in 1897, Dearborn (1898) completed a comparable study also examining the potential for inkblots to provide insight to the imagination. Kirkpatrick (1900) later examined the speed with which a person makes associations second to the presentation of an inkblot. Several years later, Whipple (1910) created what is said to be the first standardized set of inkblots used for assessment and research processes. Subsequent studies conducted by Parsons (1917) and Hens (1917) looked at inkblots' insight into the imagination of both children and adults. Collectively, this body of work focused almost exclusively on the content of inkblot descriptions offered by examinees. Little effort was made to interpret the potential meaning of those responses.

It remains uncertain how familiar Rorschach was with most of the efforts mentioned above, if at all. Therefore, it is also unclear if the work of investigators before him influenced Rorschach's efforts pertaining to the inkblot technique. The one known exception to this is that of Szyomon Hens's work (Hens, 1917). Inkblot testing served as the topic of Hens's dissertation. As a part of this project, Hens actually developed and published an inkblot test. Rorschach was aware of Hens's dissertation. Some suggest that Rorschach's knowledge of this work inspired his own focus on this form of assessment (Schwarz, 1996).

Rorschach asserted that there is a strong association between perception and personality. He further theorized that intellectual abilities, emotional style, feelings regarding self and others, and ego functioning all serve as essential aspects of an individual's psychological functioning (Rose et al., 2002; Schwarz, 1996). Owing to this belief, Rorschach differed from his predecessors in that he did not believe that the described content of an inkblot was the most important aspect of understanding a person's personality. Instead, Rorschach suggested that it is the manner in which a person organizes and presents the perceived content of an inkblot into a cohesive response that provides the most insight into his or her cognitive

processes, including those that might be unconscious (Rorschach, 1921). With that, Rorschach attempted to understand what elements of the inkblot affected examinees' responses, including the use of color, the use of shading, form, etc. More simply, Rorschach worked to determine how examinees saw responses and to determine what that perception revealed about the individual's interworkings.

As previously mentioned, Rorschach was motivated to understand differences across groups. As such, he was intentional and methodical in his examination of how groups varied in their perceptions (Schwarz, 1996). His first attempts to develop an inkblot test occurred in his early work with his examinees diagnosed with schizophrenia at the Munsterlingen Mental Hospital (Pichot, 1984). At that time, he compared results of his own assessment with the replies given by the same sample of examinees to Jung's test. As a part of this experience, he experimented with several hundred different inkblots, testing them on a group of 300 examinees with known psychiatric diagnoses and a control group of individuals with no known psychiatric dysfunction. Secondary to the intensive testing of their diagnostic value across groups, Rorschach eventually selected 10 inkblots to serve as the foundation of his test. He conceptualized the set of 10 inkblots as a tool for diagnosis rather than one for deciphering personality. He believed the responses to the inkblots provided by people with different types of mental disorders would reveal patterns or themes associated with designated diagnoses, which could then be categorized, allowing for effective differential diagnoses in future assessments using the inkblots. Rorschach only completed one manuscript, *Psychodiagnostik,* regarding the Rorschach Test, which he published in 1921, only one year before his death in 1922 (Rorschach, 1921; Rose et al., 20002; Schwarz, 1996). His test was translated from German to English in 1942.

Since his death, the Rorschach test's scoring system has been modified several times, first by Beck, then by Klopfler, and others (Rose et al., 2002; Searls, 2017). In 1937, Beck attempted to measure the cognitive perceptual processes involved in examinees' application of meaning to the inkblots. During that same year, Klopfler, on the other hand, aligned his efforts more with those of traditional psychoanalytic inquiry, focusing more on coding the examinees' described content. Over the next three decades, Hertz, Piotrowski, and Rapaport, Gill, and Schafer all developed additional coding systems for the Rorschach. Each of these systems represents an intermediate between the systems developed by Beck and Klopfler (Rose et al., 2002). The variation in coding principles and procedures led to great scrutiny of the Rorschach for some time. Eventually, Exner (1969) completed a meta-analysis of the existing scoring procedures for the Rorschach test in 1967. Through this analysis, he discovered that each of the previously developed coding systems was flawed. Second to this conclusion, Exner and his colleagues developed *The Exner Scoring System*, also known as the *Rorschach Comprehensive System*. This scoring system is supported by a large body of empirical research and is now considered the standard modality for scoring and interpreting Rorschach results (Exner, 1993)

It should also be noted that in 1939, the use of Rorschach Test was expanded in its originally proposed purpose from serving strictly as a diagnostic tool to also act as a projective assessment of personality. Subsequent research and refining efforts have led to standardized administration procedures, the development of a consistent scoring system, special scoring categories, formal empirical studies regarding the efficacy of the Rorschach, as well as the development of a larger normative database from which to compare results

(Rose et al., 2002). Modifications have also led to the inclusion of research control groups for age, gender, intelligence quotient, and socio-economic status (Rose et al., 2002; Searls, 2017; Weiner, 1997).

The Rorschach

Appropriate Use

The Rorschach Test is said to be appropriate for the assessment of individuals age five years old through adulthood. The assessment may be used alone or in conjunction with other tests. It is described as flexible in its utility, as the results from the Rorschach may provide insight into the examinee's coping styles, tolerance levels, affective presentation, emotional regulation capacities, problem-solving styles, the presence of psychosis, reality testing, and perceptual accuracy. The results of the Rorschach Test could also provide insight into examinees' personal issues (i.e. preoccupations, etc.). Owing to the test's flexibility and the many potential insights its results may reveal, the Rorschach may be useful in a therapeutic environment as one part of a differential diagnosis assessment, to determine how an examinee responds to ambiguity, to determine an examinee's preferred methods of clinical interventions, or to monitor therapeutic progress (Rose et al., 2002).

Administration

Examiners are advised to administer the Rorschach Test in a distraction-free environment. Specifically, an ideal environment to complete the Rorschach Test is in a comfortable and quiet office setting. Within this backdrop, the examiner and examinee should sit at a table next to each other, preferably with the examiner sitting just slightly behind the examinee. The examiner is not to sit face-to-face with the examinee under any circumstances. The purpose of this arrangement is to reduce the potential for cues by the examiner or to influence the examinee's responses or actions during the testing procedures. Examiners should plan to allow at least 90 minutes for the completion of the Rorschach with adults. Approximately 45 minutes is proscribed for the completion of the test with children (Burstein & Loucks, 1989; Rose et al., 2002).

The primary instrument involved in the administration of the Rorschach Test is a set of 10 official cards, as designed by Hermann Rorschach. These cards are 18×24 centimeters. Each card contains an inkblot presented on a white background. Each card's blot has near bilateral symmetry. As proscribed by Rorschach, five of the cards consist of blots printed in black ink. Two of the cards have blots made up of black and red ink. The final three cards contain multicolored inkblots. The cards are placed in numerical order and presented face down in front of the examinee. The first card is placed on top (Burstein & Loucks, 1989; Rose et al., 2002,).

As with all assessment procedures, the establishment of rapport is critical. It is important for the examiner to facilitate an environment in which examinees feel comfortable with the examiner so that they will provide complete and honest responses to each of the stimuli. It

is recommended that the examiner provide an overview of the Rorschach and then address any questions examinees have regarding the test. Examiners should be polite and thorough in their responses without engaging in excessive pleasantries. Once a positive rapport is established, the administration of the Rorschach includes two official stages: the *response* phase (also sometimes referred to as the association stage) and the *inquiry* stage (Rose et al., 2002).

During the *response* phase, the examiner hands each card to the examinee one at a time in the prescribed sequence. The examinee is prompted to answer the question, "What might this be?" The examinee is to respond to this exercise using free association. The examiner records each response verbatim. The examiner may ask the examinee to slow down or repeat comments, as necessary. Exner developed a standardized group of common abbreviations for recording responses, which is used across examiners to simplify this process. Responses are documented on a piece of paper measuring 8 × 11 inches. Each paper should be split into four columns: The first describes the card number, the second the response number, the third column reflects the verbatim response answer, and the fourth column is used for the inquiry stage. It is typical for examinees to provide more than one response for each card. The examiner is to intervene and move on to the next card, if five responses are provided for a particular card. If the examination yields less than 14 responses across all 10 cards, the examiner is to present the cards to the examinee a second time. Whilst documenting the examinee's actual responses, the examiner simultaneously notes behavioral cues as well (Burstein & Loucks, 1989; Rose et al., 2002)

Throughout the Inquiry Phase, the primary goal is to access additional information to confirm that the coding of each response is accurate. Similar in format to the previous stage, the examiner once again presents each card, one at a time, in a proscribed sequence and asks the examinee to further describe what he or she saw in the previous round. The examinee is tasked with showing the examiner what he or she saw, where he or she saw it, etc. The examiner is only to ask clarifying questions during this round of assessment. As the examinee describes the stimuli noted, the examiner notes that which is explained on a verbatim basis and also makes note of the examinee's behavior, such as how the examinee holds the card or rotates it, whether or not the examinee asks permission to rotate the card, etc. The purpose of this phase is to assess perspective while simultaneously assessing for motivation patterns and response tendencies (Rose et al., 2001).

Scoring

Scoring the Rorschach is a complex process and thus requires much training and familiarity with the test (Burstein & Loucks, 1989). The Exner Scoring system (also known as the Rorschach Comprehensive System) is the standard modality for scoring and interpreting Rorschach results (Exner, 1993; Rose et al., 2002). The scoring process involves two major stages: First, all of the qualitative data (i.e. the descriptions provided by the examinee) must be transformed into numerical data. Next, the numeric data is evaluated for use in the structural summary and interpretation (Exner, 1993).

Exner (1993) explained that the purpose of assessing an individual via the Rorschach and scoring those results is to provide a holistic picture of that individual. As such, the

examiner must maintain a global perspective, considering the various interrelationships affecting that person's personality, rather than zeroing in on one particular coded variable. Given the need to assess the entire person, data is not coded until after the inquiry stage of the assessment. Since these stages are sometimes completed at separate times, it is important to note that the examinee's experiences may vary between stages. The examiner is also tasked with attending to and coding ALL of the data elicited from the interview. The failure to assess all responses, in full, may lead to a distorted understanding of the examinee's personality.

Given the extensive empirical research supporting its utility, Exner's (1993) *Comprehensive System* is typically applied during the scoring process. His book by the same name provides specific and explicit instruction regarding how to code the qualitative data into numerical data (Exner, 1993). Within this scoring framework, each examinee's response to each ink-blot must be coded under multiple categories. These categories include:

- Location and Developmental Quality: Where on the card the examinee noted the stimuli and the degree of meaningful organization used within the response;
- Determinants: The characteristics of the inkblot to which the examine responded;
- Form Level: The degree to which the examinee's description of a form fits the area of the inkblot reviewed;
- Contents: The name or class of objects used in the response out of 27 prescribed possible categories;
- Popularity/Originality of Responses: How well the examinee's response aligns with the most popularly given responses;
- Organizational Activity: The degree of organization leveraged to integrate the contents described in the response, and
- Special Scores: Any unusual deviations that must be noted (i.e. developmental disability, etc.).

<div align="right">(Burstein & Loucks, 1989; Exner, 1993; Rose et al., 2002).</div>

The process of coding in each of these categories involves a number of unique considerations and entails the use of unique symbols. A complete explanation of the same is available via Exner's *Comprehensive Summary (*Exner 1994, 1995*)*.

Results

Once scoring is completed, the scores are transferred to the "Sequence of Scores" sheet. This sheet is composed of 10 columns listing all of the coding scores for each response. The columns included on this sheet include:

1) Card
2) Response No.
3) Location and DQ
4) Location No.
5) Determinants
6) Form Quality
7) Content(s)

  8) Pop
  9) Z-Score
10) Special Scores

Appropriate and corresponding codes are included in each of these columns for each inkblot card. The examiner then completes a series of calculations to determine a structural summary of the assessment data. Combined, the information presented in this scoring process provides the examiner with an overview of the examinee's personality (Burstein & Loucks, 1989; Exner, 1993; Rose et al., 2002). As with the basic scoring processes, a more detailed explanation of the coding and calculation process is included on the Sequence of Scores sheet, available via Exner's (1993) *Comprehensive System*. It should also be noted that there are now a number of software programs, including RIAP and ROR-SCAN, which help simplify this process for those who do not want to complete it by hand (Rose et al., 2002).

Interpretation

Interpretation of the Rorschach may begin as soon as the data is organized into the structural summary. The interpretation process consists of two stages: The Propositional Stage and the Integration Stage. As with scoring procedures, effective interpretation of the Rorschach Test relies on the extensive training, experience, and demonstrated competence of the examiner. Within the Propositional Stage, the examinee's scores are compared and contrasted with established norms among clinical and non-clinical populations. Based on these comparisons, the examiner formulates hypotheses regarding the examinee's personality. The examiner is advised to be conscientious regarding the degree to which the demographics of the norms correspond with those of the examinee (Burstein & Loucks, 1989; Exner, 1993, 1994, 1998; Rose et al., 2002; Weinter, 1998).

During the Integration Stage, the examiner reviews the examinee's response presentation across seven clusters, including:

1) Information Processing
2) Cognitive Mediation
3) Ideation
4) Capacity for Control and Tolerance for Stress
5) Affect
6) Self-Perception
7) Interpersonal Perception and Relations

Additionally, examiners are to assess for Suicide Constellation (S-Con) as a separate variable (Exner, 1993).

Exner (1993, 1994, 1995) referred to the first three clusters as the "cognitive triad." The overlap between these clusters highlights Exner's assertion that none of the seven clusters ought to be examined in isolation, as they work co-operatively to provide insight into an individual's functioning. Exner (1994, 1995) also suggested that, technically, the clusters may be assessed in any order, yet most examiners tend to review them in the order suggested either by the referral question or per Exner's identified Key Variables, which are explained in detail within the *Comprehensive System* (1993). Based on the analysis across clusters and validity indicators, the examiner will develop a series of hypotheses addressing

the cognitive emotional and interpersonal variables affecting the examinee's presentation. The examiner combines this data and integrates it into a meaningful description of the examinee's relevant personality variables. The conclusions are then typically incorporated into a larger assessment process, which likely includes a clinical interview, a review of the examinee's life history, and an examination of collateral resources, and other psychological examinations (Rose et al., 2002).

Strengths and Weaknesses

The use of the Rorschach Test has long been controversial due to critiques regarding its perceived reliability, validity, and utility within a clinical environment (Cronbach, 1949; Garb, 1999; Meehl, 1959; Meyer, 1997). A main point of concern for opponents of the Rorschach test is the fact that the instrument is no longer used as originally intended. They argue that Hermann Rorschach wanted the test to serve as a diagnostic tool rather than one that assesses personality in general. As such, this causes some concern for the Rorschach Test's face validity (Garb, 1999; Weiner, 1997). Supporters of the test argue that while Rorschach might have wanted the instrument to offer insight into psychopathology, the instrument is ultimately sufficiently developed to offer insight into personality outside dysfunctional circumstances. In fact, many proponents of the instrument argue that its refinement, which is based historically on several traditions of psychology, may actually now serve as a more robust tool than Hermann Rorschach could ever have imagined.

Another concern that opponents of the Rorschach Test typically identify is its scoring. Over the years, several different scoring systems have been applied to the Rorschach Test, each focusing on a different objective (Klopfler, 1946; Piotrowski, 1957; Rapaport, Gill, & Schafer, 1945). This concern is valid, but has been addressed extensively by Exner and his colleagues (1991). Via the development of the Comprehensive System, Exner and his colleagues (1993) standardized the administration and scoring of the Rorschach Test. The use of the Comprehensive System is now supported by a large body of empirical research, which includes a sizable normative sample, including information across several reference groups, which seems in line with the spirit of Rorschach's original work (Weiner, 1997). Numerous studies have also been completed over the past several decades that cross-validate the research regarding the identified normative groups as well, further supporting the test's utility in terms of better understanding personality (Exner, 1991). Opponents of the test caution, however, that there is minimal research regarding the use of the Rorschach with minority populations (DeVos & Boyer, 1989). Therefore, it is unknown how helpful this instrument may be in assessing members of those groups. Research also suggests that the Rorschach Test is limited in the extent to which it might provide examiners with the ability to understand an individual's presentation. For example, the literature indicates that the Rorschach Test is unable to assess memory, intelligence quotient, neuropsychological impairment, learning disabilities, daily living skills, or violence potential well (Meyer, 1999). As such, it is incumbent on the examiner to assess these facets separate from the Rorschach Test.

Collectively, the literature critiquing the Rorschach Test highlights the fact that this instrument is a highly complex tool, which requires extensive training to properly administer, score, and interpret it. The ambiguity of the test requires the examiner to be

incredibly skilled in test administration and interpretation, as well as familiar with the structure of personality and complexities of psychopathology. This instrument is best utilized in conjunction with other instruments to gain a comprehensive overview of personality. Within a constellation of instruments, the Rorschach is probably best equipped to provide insight regarding the examinee's worldview and object-representations as well as their perceptual accuracy and reality testing.

See Also

Projection Techniques, General Features and Methodological Issues

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Tell-Me-A-Story (TEMAS)

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The Tell-Me-a-Story (TEMAS; Constantino, Malgady, & Rogler, 1988) is a multicultural thematic apperception test designed for use with racial/ethnic minority and non-minority children and adolescents aged 5 to 18. The TEMAS was developed specifically for culturally and linguistically diverse children and adolescents. The TEMAS differs from other apperception tests such as the Thematic Apperception Test (TAT) in that the stimulus cards are printed in color and were designed to depict everyday situations. There are two sets of parallel cards: one for Latino and Black children and one for White children. Additional versions of the TEMAS stimulus cards have been developed for Argentinian and Orthodox Jewish children (Constantino et al., 2014) and Asian American children (Constantino & Malgady, 2000). The 23 TEMAS stimulus cards depict urban surroundings with the following themes: home and family, peer interactions, street experiences, school and fantasy, and day dreaming. In addition to the two versions, the TEMAS can be administered using a short form administration of nine cards and the long form administration using all 23 cards.

The TEMAS was standardized on a sample of 642 children (281 male and 361 female) attending public schools in New York. Although the test can be administered to examinees up to age 18, norms are only available for examinees ages 5 to 13. The norms are based on the assumption that the examinee is a typically developing child without serious sensory or intellectual impairment. There are four normative tables: White, Black, Puerto Rican, and Other Hispanic. While the TEMAS has an ethnically diverse sample, there are criticisms of the small and geographic restrictive normative sample (Flanagan & DiGiuseppe, 1999).

The examiner presents the stimulus card to the examinee with the directions of telling a story. In the TEMAS stories, examinees must include information about the characters and their relationship, what they are doing before and after the conflict depicted on the stimulus card, and what the main character is thinking and feeling. The stories are scored along three dimensions (cognitive, personality, and affective) according to standardized scoring procedures. The three dimensions are cognitive functions, personality functions, and affective functions. The 18 cognitive functions refer to how the examinee organizes information about self, the environment, and the relationship between the two when telling a story

about the picture. The nine personality functions are scored on a 4-point scale, ranging from "very maladaptive" to "mature and responsible." Each stimulus card is designed to pull for at least one personality function. The personality functions are: Interpersonal Relations, Aggression, Anxiety/Depression, Achievement, Delay of Gratification, Self-Concept of Competence, Sexual Identity, Moral Judgment, and Reality Testing. The affective functions refer to the affect or mood states attributed by the examinee to the main character in the story. The affective functions are scored on the affect of the main character and the congruence of the reported affect with the story's content. The seven affective functions are Happy, Sad, Angry, Fearful, Neutral, Ambivalent, and Inappropriate Affect.

Follow-up studies of the TEMAS demonstrated that the profiles of the TEMAS personality function can discriminate between clinical and non-clinical samples (Flanagan & DiGiuseppe, 1999). In a study of Black and Hispanic children, the TEMAS discriminated between public school children and children diagnosed with DSM-III mental disorders. The primary discriminating personality functions were Person Relations, Aggression, and Anxiety. To a lesser extent, Sexual Identity, Moral Judgment, and Reality Testing also discriminated between the two groups (Constantino, Malgady, Rogler, & Tsui, 1988). Similarly, in a study to establish evidence of the non-minority version of the TEMAS, the personality functions of Interpersonal Relationships, Aggressiveness, Anxiety, Achievement Motivation, and Self-Concept discriminated between White public school children and White children in mental health facilities (Constantino, Malgady, Colon-Malgady, & Bailey, 1992).

Studies in which children were assessed with both the TEMAS and the Behavior Assessment System for Children (BASC) showed significant correlations between TEMAS personality functions and BASC components. This may suggest that the TEMAS and BASC may assess different aspects of functioning and may be complementary measures. Specifically, the personality function of Reality Testing significantly correlated with the BASC clinical maladjustment composite, emotional symptoms index, school maladjustment composite, and sense of inadequacy. As such, the TEMAS Reality Testing may be an overall index of poor adjustment (Flanagan, 1999).

See Also

Projection Techniques, General Features and Methodological Issues
Thematic Apperception Test

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Thematic Apperception Test

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The Thematic Apperception Test (TAT) is a projective instrument used by clinicians to get psychodynamic understanding of personality features through administration of ambiguous cards to which examinees respond with narratives. While some have historically hailed projective testing as a "mental X-ray," the TAT and other such tests have become highly controversial. The TAT relies upon the projective hypothesis, which suggests that the examinee's responses reflect important facets of their personality. Although the TAT has been found useful for bolstering assessments of personality as a widely used tool, some questions have been raised regarding its validity and reliability. Recent trends in research have focused on standardizing scoring for interpretation and further defining the purposes for which the TAT can offer illumination of personality.

Test History and Development

Christina Morgan and Henry Murray of the Harvard Psychological Clinic originally proposed the TAT's rationale and protocol in 1935, but the test was further elaborated upon in more formal 20-card formats in 1938 and 1943. Murray's rationale for the test included two goals. First, he suggested that the TAT would allow psychodynamic clinicians to glean important psychic material from clients that they were either unwilling to share or were unaware of. Second, he suggested that use of the instrument would allow clinicians to work more efficiently. This second proposed advantage was particularly important, as psychoanalysis was already being challenged by more efficient behavioral models that reduced the length of treatment significantly. Since its development, the TAT has remained incredibly popular with clinicians as the second most used projective instrument. It has also inspired additional projective assessments, such as the Children's Apperception Test, Tell-Me-A-Story (TEMAS), and South Mississippi TAT as responses to the perceived limits of the instrument.

Initially, the theory behind the TAT was primarily Murray's need-press model. However, as the test gained in notoriety, others found the TAT effective for assessing dynamics consistent with conventional psychodynamics, objective relations, and narrative theory. In Murray's model, personality is largely conceptualized through the interaction of internalized needs and values with the contextualized external world. The ambiguity of the cards used in the TAT seemingly provide a window into the expression and intensity of these themes as experienced by the individual. Psychodynamic researchers have suggested that the TAT also could be used to assess superego conflicts, castration anxiety, perception of parental figures, drives, and defense mechanisms. Object relations theorists indicated that the TAT could be used consistently as well to assess objects that are internalized, moral integrity, affective investment, and social motivation. All of the theorists suggested that the TAT is effective at assessment based on the projective hypothesis, which indicates that the ego projects unconscious content onto the ambiguous cards in the absence of guidance on how to filter responses in a socially appropriate manner.

Administration, Scoring, and Interpretation

Murray suggested that an emphasis upon rapport-building was central in establishing the assessment environment for the TAT; thus, he suggested an interpersonal office setting where the cards of the TAT could be administered and the examiner could personally receive the verbal responses of the examinee. In his original protocol, Murray indicated that the examiner should sit so that he or she was not in the direct visual field of the examinee to avoid impacting responses. The TAT consists of 20 cards on which black-and-white pictures are printed. The cards can be administered to adults and children. Murray originally recommended administering all 20 cards to each examinee, but protocols with fewer probes have flourished. In selecting fewer cards, protocols have developed in which certain cards are used for specific personality and diagnostic concerns. Upon administration, examinees are read a standardized introduction to the test, and they are instructed to develop stories for each card that have a beginning, a middle, and an end. Additionally, examinees are directed to include the thoughts and feelings of characters in their stories. During administration, the examiner records verbatim – with notes of pauses, stuttering, and other observations – the narratives shared for each card. The examiner is required to ask for clarification if required components of stories are omitted, and inquiry consistent with other projective tests can be undertaken after administration of all cards for additional information.

Regarding scoring, Murray originally suggested the needs and presses should be listed out from the responses of the examinee and subsequently weighted. Others have used thematic interpretations of the narratives, and still others have focused on scoring models consistent with theories of object relations and conventional psychodynamics. However, the most recent advances in scoring and interpretation have occurred in terms of standardized scoring. Bellak (1997) developed an approach that relies on quantifiable ratings that weight information from both individual stories and themes that develop across stories. Bellak's approach focuses on scoring along primary drives and needs of the hero, conceptualization of the external world, relationships to others, conflicts, anxieties, defense

mechanisms, superego dynamics, and ego strength and integrity. In comparison to other projective tests, the TAT provides some of the least ambiguous stimuli and requires the most comprehensive responses of the examinee. Despite this, standardized scoring has lagged behind Exner's approach to the Rorschach and other scoring protocols for projective drawings.

Once scored, TAT data can be used to define personality constructs of the examinee. In Bellak's system of interpretation, the scoring yields conclusions that are descriptive, interpretive, and diagnostic. Such levels of interpretation yield findings that not only provide themes of experience and context of the patient but yield insights into attributes and underlying schemas of the examinee that predict and explain his or her presentation. Additionally, interpretation also tends to include assertions regarding intelligence and maturity. Regarding interpretive context, it is also important to consider if the stories developed were cliché or previously heard narratives. A high concentration of such responses might be suggestive of ego defensiveness.

Psychometric Properties

In consideration of psychometric properties, challenges exist for assessment. For example, clinicians often use different selections of cards and rely upon intuitive theme-based approaches to scoring and interpretation that do not lend themselves to rigorous evaluation. However, the evaluation of standardized scoring systems suggests some evidence of psychometric confidence. For example, test-retest reliability was found to be good across various scoring systems (.85 or higher for most of them). However, given that many clinicians do not use the test the way it was assessed in such studies, one might wonder if these reliability coefficients are generalizable. While the scoring systems show strong test-retest reliability, given that examinees tend to tell different stories in response to the same card if presented at a later time, the test-retest reliability of the actual test is dubious. Additionally, internal consistency cannot be evaluated, as each card measures an independent factor of personality.

While reliability of the TAT when standardized scoring systems are employed is generally good, the evidence regarding validity is much more mixed. On one hand, the TAT does not measure intensity of a construct; thus, a high score on anxiety does not equate to frequent expression of anxiety by the examinee. On the other hand, research on criterion-related validity in relation to need for achievement, affiliation, and power has shown positive results. Additionally, research has shown the TAT can be used to accurately diagnose and make inferences in clinical settings. With regard to construct validity, some research has shown that narratives provided in response to certain cards are likely to correlate to specific personality dynamics. For example, examinees who respond with a story of jumping from a window in response to a card with a silhouette of an individual in a window tend to experience some suicidal ideation.

The TAT has been used in research and practice across the world, and versions of the test have been developed for specific cultural groups, including Hispanics, African Americans, and Chinese. These culturally fair versions have typically involved the development of different cards that are socio-culturally relevant; however, this process has often not included additional development of culturally appropriate norms and scoring systems.

The Tell-Me-A-Story and Roberts-2 – two alternatives to the TAT – are exceptions to the latter observation.

Despite some questions of psychometric properties, the TAT remains among the most popular tools for clinical and research-related assessment of personality. Reasons for its popularity tend to relate to its utility. Examiners perceive they can gain insights into covert aspects of an examinee's psyche because the test discourages faking and is interesting to examinees. Furthermore, the test assesses personality broadly, as opposed to factor-based objective personality tests.

Trends and Future Directions

Although the TAT remains popular, it has become less used in recent years. Reasons for the decrease in popularity include managed care's emphasis upon cost-effective instruments. The TAT requires significant time to administer, score, and interpret; in contrast, there are now many other tools that can collect similar information in less time. Moreover, as clinicians are required to be competent in an ever-increasing number of tests, less time is available for the considerable training necessary for effective utilization of projective tests. While the longstanding questions regarding the TAT's psychometrics have not historically diminished its popularity, more recent research calling into question its validity and reliability likely adds controversy that will contribute as the previously mentioned concerns diminish popularity. Ironically, even as the limits of the test have promoted significant research into scoring systems and alternative tests, the consequence of these processes include less utilization of the TAT itself.

The TAT's popularity is threatened by a variety of variables, but a number of advances have occurred in research that suggest areas for further development. Most notably, scoring systems continue to be produced, and these systems tend to be increasing validity and reliability evidence necessary for clinicians to use the tool with confidence. A number of object relations researchers have developed scoring systems that show promise for using the TAT for assessing introjects and defense mechanisms. Additionally, Weston's scoring system has been shown to use the TAT in a valid and reliable manner for diagnosis of personality disorders. Moreover, there has been increased interest in using the TAT to assess affiliation, achievement, and power; in turn, research has been developing evidence of the TAT's validity for assessing these characteristics in cross-cultural contexts. If the further development of efficient scoring systems with strong psychometric properties can be paired with technology that speeds up administration, the TAT may be able to transition into the next era of personality assessment for the reasons above that promote its popularity.

See Also

Henry A. Murray
Projection Techniques, General Features and Methodological Issues
Tell-Me-A-Story (TEMAS)

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Word-Related and Figure-Construction Projection Techniques

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Projection techniques use responses to semi-structured stimuli to infer aspects of personality. These techniques are guided by the assumption that, compared to self-report measures and structured behavioral tasks, their unstructured or ambiguous nature offers participants more opportunities to reveal aspects of their personality (see Rorschach Test). The underlying premise – that responses to ambiguous stimuli reveal aspects of personality – has been challenged for decades (e.g. Murstein, 1961).

As such, scholars suggest that interpretations drawn from projection tasks should remain exploratory. When interpreting responses, researchers should balance two dialectic principles: that every detail of a participant's response may carry meaning, and that hypotheses, however plausible, should remain conjecture until corroborated by more objective sources of data (see Tharinger & Stark, 1990). In what follows, we review word-related and figure-construction projection techniques.

Word Association Tests

With word association tests, participants respond to stimuli (words) by saying the first thing that comes to their mind. Differences in participants' responses are thought to reflect aspects of their personality. For instance, participants may be shown a card with the word "mouth" printed on it. A response of "talk" may be hypothesized to reflect an interpersonal orientation.

While the structure of these tests has changed little since early examinations of word associations, researchers have modified stimuli used in attempts to make them more evocative and standardized. Rules for interpretation differ by iteration of the assessment tools, but most scoring systems for word association tests involve evaluation of the content of responses, response time, and uniqueness of response.

Sentence Completion Tests

Sentence completion tests expand upon word association tests by adding structure; instead of responding to a single word, participants complete sentence stems. Compared to word association tests, sentence completion tests tend to be more focused in scope and interpretation and have stronger empirical support. Sentence completion tests are typically scored by examining response content. For example, a response to "I FEEL LIKE" of "I am drowning in grief" might suggest poor psychological adjustment. Interpretations are judged by their plausible relevance to a given construct. As is the case for most projection tests, confidence in interpretations is bolstered by the presence of corroborating information.

The Washington University Sentence Completion Test (WUSCT)

The WUSCT is used to identify the level of ego development that best characterizes an individual along Loevinger's Theory of Development (Hy & Loevinger, 1996). This theory posits that there are eight stages of personality growth, with maturation defined by an individual's progression in their perception of and response to his/her social environment.

In the WUSCT, sentences (*N*=36) are scored individually and participants are given an overall score. The recommended procedure for determining the overall score involves considering item scores, their distribution, and accounting for outliers. Studies of the WUSCT suggest it may be a psychometrically sound measure of ego development (e.g. Westenberg, Hauser, & Cohn, 2004). Recently, lower scores on the WUSCT have been shown to be positively correlated with internalizing symptoms and negatively correlated with aggression and substance abuse (Duffy, Ruegger, Tiegreen, & Kurtz, 2017).

Rotter Incomplete Sentence Blank (RISB)

The RISB is a sentence completion test designed to screen for difficulties in psychological adjustment (Rotter & Willerman, 1947). In the RISB, participants complete 40 sentence stems. Coders rate responses to each item on a scale of 0 to 6, where low scores indicate positive adjustment and high scores indicate conflict. With a possible range of scores from 0 to 240, scores over 144 suggest cause for clinical concern.

The RISB can be used as a measure of psychological adjustment: responses to the RISB distinguish between people receiving treatment for emotional or behavioral problems and those from a community sample with accuracy ranging from 75–80% (Lah, 1989), which provides evidence of its predictive validity. Moreover, high scores on the RISB have shown an association with anxiety, depression, and interpersonal difficulties (Torstrick, McDermut, Gokberk, Bivona, & Walton, 2015). However, because more precise tests exist, researchers suggest that the value of the RISB lies in its ability to generate hypotheses about an individual's personality, rather than diagnosis.

Figure-Drawing Tests

Figure-drawing tests ask participants to draw human figures, trees, and/or houses. Tests often include an inquiry procedure, wherein participants are asked about the drawings they produce (e.g. "How does this person feel?"). However, no standardized inquiry procedure

exists. The content of a participant's drawings, the manner in which a participant approaches the task, and what a participant says during the inquiry can yield insight into his/her perceptions of the self, others, or family. For example, if a participant describes her drawing as "standing up straight and tall," a researcher may hypothesize that the participant perceives herself in this way.

Draw-A-Person (DAP) Test

On the DAP test, participants are asked to draw a person. Next, participants are asked to draw a person of the opposite gender. This procedure can be supplemented by asking participants to draw a self-portrait. Last, participants respond to an inquiry about their drawings; e.g. "Please tell a story about this person." Interpretations of DAP responses have become more conservative over time: while the measure's creator initially argued that singular aspects of drawings could reveal broad personality characteristics (Machover, 1949), researchers now caution against making such conclusions based on a single variable. One factor that may hinder the reliable inference of information from these drawings is the range of meanings a drawing may represent: an ideal version of the self, the perceived version of the self, perceptions of others in general, or specific people in a participant's life. Newer iterations of the DAP test involve systems for arriving at specific conclusions about psychological well-being. Two such systems have received consistent empirical support (Tharinger & Stark, 1990; Naglieri & Pfeiffer, 1992). Recently, scholars have called into question assumptions the DAP test makes about gender and how it should affect interpretation of DAP responses (Picard, 2015).

House-Tree-Person (HTP) Test

On the HTP test, participants draw a house, a tree, and a person, which are interpreted in aggregate. Some researchers include an inquiry as well, asking participants to describe their drawings. The HTP test was designed to assess children's psychological functioning (Buck, 1948). House drawings are thought to reflect how participants perceive their home lives and families, while tree and person drawings are thought to reflect how participants perceive the self. By eliciting a child's thoughts and feelings about his/her family life through house drawings, the HTP test is thought to provide a relatively comprehensive examination of a child's adjustment. Coding systems for the HTP test have received little attention from researchers. Thus, little empirical evidence exists to support the utility of this measure in assessing overall adjustment. However, some success has been reported in using the HTP test as a measure of specific constructs, such as resilience (Roysircar, Colvin, Afolayan, Thompson, & Robertson, 2017).

Draw-A-Person: Screening Procedure for Emotional Disturbance

The DAP:SPED is an atheoretical coding system for the DAP used to assess psychological adjustment (Naglieri et al., 1992). Participant drawings are examined for the presence of 55 items, each of which has been shown to correlate with emotional disturbance in nationally representative samples; for example, "crossed eyes." If a given characteristic is present, a score of 1 is given for that item – if not, a score of 0 is given. Scores for all drawings are

summed and standardized, with higher scores indicating more emotional disturbance. The DAP:SPED has extensive psychometric support in screening for emotional disturbance (e.g. Bardos & Doropoulou, 2014).

Strengths and Limitations

Advocates of projection tests argue that these techniques offer advantages over self-report measures, contending that their unique format enables these assessments to reveal things of which a participant is not aware. In contrast, critics assert that the central assumption underlying this method – that participants project aspects of their personality – is not sufficiently supported by empirical studies. Here, advocates for projection techniques make a distinction between idiographic and nomothetic approaches. The former constitutes the holistic use of projection tests to generate hypotheses about a participant's personality. Owing to the open-ended nature of such hypotheses, it can be difficult to study them systematically. The latter can be characterized as the search for associations between responses and specific aspects of personality. While limited evidence exists for an idiographic approach, empirical studies suggest that word-related and figure-construction techniques can support research endeavors. For example, scholars have concluded that the DAP test can measure treatment progression (Robins, Blatt, & Ford, 1991).

The format of projection tests offers several benefits that self-report measures do not. Performance on projection tests may be harder to fake, given that it can be unclear to participants what constitutes a socially desirable response. This argument is less applicable to sentence completion tests, which are relatively straightforward compared to tests like the HTP. In addition, children, people with limited language skills, and people hesitant to divulge personal information may find these techniques more accessible than interviews or self-report questionnaires. Scholars have also argued that figure-drawing techniques are less culturally bound than other common measures. Last, the materials required for administering word-related and figure-construction projection tests tend to be simpler than those required for many self-report measures and interviews, and the administration time is shorter.

See Also

Rorschach Test

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Behavioral Genetics, General Features and Methodological Issues

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The purpose of the field of behavioral genetics is to understand the extent to which genetics and the environment affect the variability observed in behaviors. More specifically, behavioral genetics has contributed to the understanding of personality by demonstrating the influence genes and heredity have on its development, along with environmental factors.

Behavioral genetics is designed to identify and differentiate the effects of genetics and the environment on behaviors by examining people of differing degrees of genetic relatedness and assessing the similarities and differences among them (Plomin, 1986). More specifically, in the field of personality psychology, this domain has been employed to expound upon the role of genetics and environmental factors in personality development. Therefore, in using the techniques of behavioral genetics to explore personality traits, a comparison is made between the personality traits measured and the genetic similarity between participants. This would then include comparisons between monozygotic (identical) and dizygotic (fraternal) twins. By measuring personality differences between monozygotic and dizygotic twins, conclusions about genetic influences can be drawn based on genetic similarity. Accordingly, to conclude that genetics is a contributing factor to explaining personality traits, monozygotic twins should be about twice as similar in their personality traits as dizygotic twins, whereas if dizygotic twins' similarity is larger than expected based on genetics, it can be concluded that this can be attributed to a shared environmental experience. Differences observed among monozygotic twins are due to individual differences experienced in their unique environments.

In behavioral genetics, comparisons can be made among adopted and non-adopted siblings to assess the effects of heredity and the environment. When non-adopted siblings are more similar than adopted siblings, this can be attributed to genetics since the former shares 50% genetic similarities whereas the latter have no genetic similarities. However, when adopted siblings who do not share a degree of genetic relatedness have similarities among their personality traits, this is due to the environment that they shared through

their rearing. Therefore, researching personality differences and similarities among family members with varying degrees of genetic relatedness, along with comparing them to adopted, unrelated siblings, allows further explication of the effects of both nature and nurture in understanding personality development.

Advances in the research methodology in behavioral genetics have provided a greater understanding of the influences on the development of personality traits. Studies including large sample sizes of both monozygotic and dizygotic twins reared together have been conducted. Further, studies from both biological and adoptive families of monozygotic and dizygotic twins reared apart have also been examined. Lastly, model fitting has been employed as a powerful statistical technique to analyze the aforementioned methodologies (Bouchard, 1994).

Behavioral genetics takes the approach of quantifying the variances that attribute to phenotypic variations among individuals. This includes measuring heritability (h2), which is commonly referred to as the genetic effect size, and is a measure of the variance in phenotype accounted for by genetics. Variance corresponding to environmental factors is also measured to account for the remaining phenotypic variation. Environmental factors comprise shared environmental variance (c2) and non-shared environmental variance (e2), which consists of environmental influences that are common to the members of a familial unit and those that are only specific to the individual, respectively. Non-shared environmental influences contribute to family members evolving into unique individuals. Examples of these factors can include friendships outside of the family, relationships with teachers and mentors, and differential interaction patterns with parents (Saudino, 2005).

Twin studies have sought to capitalize on the ability of using such participants to assess and quantify the genetic and environmental contributions of personality. Some of the most influential of such studies included 850 pairs of monozygotic and dizygotic twins tested by Loehlin and Nichols and compared to non-twin siblings, the 20-year-long Minnesota Study of Twins Reared Apart (MISTRA) which compared monozygotic twins to a control group of dizygotic twins who were both separated before the age of four years old, and the Minnesota twin registry which included self-report measures of personality traits and individual differences from more than 8,000 twins and their family members. Such twin studies have revealed that the genetic contribution to personality ranges from 42% to 46%. Thus, such studies of monozygotic and dizygotic twins further emphasize and support the importance of genetics in understanding personality.

While behavioral genetics is an advancing field that is aiding in uncovering the biological and environmental underpinnings of human behavior, there are important methodological concerns in the field. Issues of replication in the findings that there are genetic contributions to various psychological phenomenon, including schizophrenia, intelligence, and homosexuality, have led critics to raise the issue of whether genes influencing the development of the aforementioned topics even exist. Perhaps the issues in replication are not because genes are not implicated in such phenomena, but rather, the methods being used need further sophistication to be able to accurately distinguish genetic and environmental factors from each other. For example, when studying both factors concurrently in twins reared together, genetic and environmental contributions may be easily confounded and more sensitive methodological tools may be needed to further tease apart their differential impacts.

Along with methodological concerns, certain ethical issues have arisen surrounding the implication of the role of genetics in psychological phenomena. For example, finding that genetics influences the development of people with antisocial personalities can have a serious impact on how the justice system handles criminals who were destined to be deviant. Consequently, having an understanding of which genes are implicated in such cases of deviance and violence can ultimately lead to genetic testing in utero that can identify embryos displaying such genetic markers. Such practices of eugenics that can stem from the understanding of genetic contributions may also underscore the importance of environment to interact, and even counteract, one's biology. Thus, biology is not necessarily destiny and the environment can still have a major impact in how a person's personality may develop.

The future of behavioral genetics research rests in the field of molecular genetics, which aims to explicitly isolate and identify specific genes associated with personality traits and behaviors. The Human Genome Project, an international endeavor which has sought to identify the chemical base pairs that consist of the human deoxyribonucleic acid and associated genes, has aided in the advancements in molecular genetics research. Further, studies that seek to determine links between genes, which can allow for genetic testing, also help to advance the understanding of genetics' role in personality development. Such linkage analyses elucidate the genes and genetic markers that are likely to be inherited simultaneously because of their chromosomal locations. Thus, having an understanding of the components of humans' genetic maps at the molecular level will allow for future research to more accurately identify the specific gene or interaction of genes that contributes to the development of particular personality traits.

See Also

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Biochemical Assessment

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Recently, attempts to understand personality have begun to focus on biological underpinnings. Biological mechanisms of personality include brain structures and their corresponding biochemical modulators. Researchers have identified biochemical compounds that excite, inhibit, and modulate brain structures associated with personality dimensions. As science moves toward the psychobiological study of personality, researchers are moving toward developing valid assessments for the presence and level of biochemicals relevant to personality. Biochemical assessment methods are differentiated by factors such as in vivo versus in vitro assessment, invasiveness, sensitivity, and specificity.

A common method for assessing the level of biochemicals is by sampling bodily fluid. Fluids such as saliva, blood, urine, and cerebrospinal fluid (CSF) are accessible sources of hormones and neurotransmitters. These samples vary in the degree of invasiveness. Samples obtained from CSF fluid are highly invasive. Blood samples are slightly less invasive than CSF samples, but are still more invasive than urinary or saliva samples. Samples of bodily fluids can be analyzed with techniques such as biological assessment, immunoassay, and mass spectrometry to provide quantitative data on the biochemicals in the sample. There is a notable limitation to assessment by blood, urine, or CSF sampling when these methods are used to assess personality. Not all neurotransmitters or hormones collected originate in or affect the CNS. Acetylcholine, for example, is the primary neurotransmitter in the neuromuscular junction, which is controlled by the peripheral nervous system.

After a blood, saliva, urine, or CSF sample has been collected, it must be analyzed. One method of analysis is called biological assessment, otherwise known as bioassay. In a bioassay, the sampled molecule is injected into a tissue preparation and then compared to a standardized dose-response curve for that molecule. Tissue preparations can be either in vivo or in vitro. In vivo preparations involve injecting the sample into a live being and

observing the response. With an in vitro preparation, the sample is injected into a tissue or cell separate from a live being. An example of an in vitro preparation would be the assay of endogenous testosterone in a preparation consisting of calf serum and adult mouse testes (Van Damme, Robertson, and Diczfalusy, 1974). The molecules analyzed using bioassay range from neurotransmitters such as acetylcholine, dopamine, and serotonin to hormones like cortisol, testosterone, estrogen, and oxytocin. Investigators have used the bioassay technique to assess the relationship between hormone levels and male or female characteristics of personality in women (Baghaei et al., 2003).

The immunoassay is the current method for identifying analytes, or specific molecules of interest. In an immunoassay, the sample and a specified reagent are injected into a preparation. The reagent, an antibody or antigen, selectively binds to the compound of interest in the sample. Once the reagent attaches to the compound of interest, a chemical or electrical separation method is used to isolate specific compounds. The results of an immunoassay can be used to explain the basis of certain personality traits. For example, researchers have used an immunoassay to analyze cortisol in saliva samples to test the idea that people with psychopathic personality traits exhibit a dampened response to stress (O'Leary, Loney, & Eckel, 2007).

Samples may also be analyzed with high-performance liquid chromatography (HPLC). Liquid chromatography separates the compound of interest from extraneous compounds in the sample. Two phases contribute to the separation of the compounds: the stationary phase and the mobile phase. In the stationary phase, a glass container is filled with an adsorbent material. Materials are selected for the stationary phase based on qualities such as the pH level, particle size, polarity, and organic-inorganic composition; these characteristics influence the degree to which the molecules in the sample are attracted to the stationary phase material. Once the stationary phase has been prepared, the sample is injected. When the sample has been injected into the stationary phase, a solution is pushed through the preparation. Pushing the solution through the adsorbent material is called the mobile phase. Molecules in the sample separate based on the relationship between the molecules in the sample, the stationary phase, and the mobile phase. For instance, a molecule that shows a higher affinity for the mobile phase will move farther in the tube than will molecules with a weaker affinity for the mobile phase solution. The separation of molecules in the sample results in distinct columns of molecules. The molecules can then be identified with a detector.

One method of detection is mass spectrometry, which utilizes an ion's "mass-to-charge ratio" to provide quantitative information about the compound of interest. First, the researcher will place a sample into a mass spectrometer. The mass spectrometer then converts the molecules into ions. Then, the mass spectrometer measures each ion's mass-to-charge ratio. After each ion has been measured, each ion of a specific mass-to-charge ratio is quantified. The amount of each mass-to-charge ratio is compared to standardized results for the molecules of interest. In addition to the mass-to-charge ratios, the mass spectrometer ascertains the molecular weights of the ions. Information on the molecular weights increases the specificity of the analysis, which is a major advantage of mass spectrometry.

Measurement of biochemical compounds using urine, blood, saliva, or CSF fluid is used to assess their relationship with personality via correlational methods. Commonly, neurotransmitters or hormones are measured and correlated with participants' scores on a measure

of personality such as the Revised NEO Personality Inventory. A quintessential example of this correlational research strategy is the immunoassay of salivary samples to test the role of testosterone in dominant personality traits (Sellers, Mehl, & Josephs, 2007). Sellers and her colleagues found that the amount of testosterone recovered in the immunoassay correlated with the participants' scores on self-report measures of dominance and was unrelated to agreeableness.

As technology has progressed, researchers have developed methods for non-invasive, in vivo assessment of neurotransmitters and hormones active in the CNS. These advances include magnetic resonance imaging (MRI), functional magnetic resonance imaging (fMRI), magnetic resonance spectroscopy (MRS), and positron emission tomography (PET) scans.

Magnetic resonance imaging provides information on the activity of different brain structures by detecting differences in the alignment of nuclei in the scan. Distinct nuclei are identified by detecting the differences in their alignment. These differences are based on nuclear magnetic resonance. All nuclei spin about an axis. The axis of nuclei aligns itself according to its magnetic and chemical environment. In an MRI, the alignment of the nuclei is used to construct the image.

In an MRI, a uniform magnetic field is induced. Nuclei align themselves relative to the magnetic field. Following this, a second magnetic field is induced. The electromagnetic energy of the second field is absorbed by a nucleus, changing its magnetic resonant frequency, the frequency of spin induced by an outside magnetic field. The second magnetic field is repeatedly introduced and removed. Nuclei move between their alignment when the second field is present and when it is absent. Movement between the two alignments is detected by the MRI machine. The differences in the degree of movement are used to construct the image of the brain.

The brain is composed of a variety of structures such as white matter, gray matter, nerve bundles, and CSF. These structures have different molecular compositions which result in different magnetic resonant frequencies. The image produced represents structures with different resonant frequencies with distinct colors. For example, in images produced by an MRI, the CSF will be dark while nerve connections will be white. Modifications of MRI methodology like functional magnetic resonance imaging (fMRI) and magnetic resonance spectroscopy are used for the assessment of the brain's chemical activity.

An fMRI shows differing amounts of blood oxygenation which indicate contrasting levels of activity in separate areas of the brain. Areas with higher levels of blood oxygenation are more active than areas with lower levels. Researchers have used this technique to establish relationships between specific structures in the brain and personality dimensions; these relationships are established by performing an fMRI while a participant engages in a task designed to elicit examples of a participant's personality. For example, in a study designed to discover the brain structures contributing to differences in Big Five personality dimensions in various emotional conditions, participants listened to a piece of music meant to elicit a particular emotion while undergoing an fMRI (Koelsch, Skouras, & Jentschke, 2013). The results of the task and the fMRI are then correlated to determine which brain structures underlie the response given. Further research has revealed that specific brain structures are activated, modulated, or inhibited by specific neurotransmitter or hormonal systems. A classic example of a brain structure being predominantly innervated by a specific neurotransmitter

or hormonal system is the striatal and ventral prefrontal areas. Dopamine is heavily involved in the activity of the striatal and ventral prefrontal areas. Measuring activity in these areas indirectly assesses the activity of biochemicals as they relate to personality.

Magnetic resonance spectroscopy adds to the information obtained with an MRI by providing details about the specific compounds present in the brain. The specific compounds are analyzed by coupling MRI technology with magnetic spectroscopy. Magnetic spectroscopy minimizes the number of signals analyzed by suppressing the signals from nuclei in fat, water, and other extraneous compounds. The remaining signals are quantified, producing information on the concentration of the molecules present. A notable limitation of MRS is that it is unable to quantify dopamine, serotonin, and acetylcholine.

Positron emission tomography is an imaging technique that utilizes radioactive ligands, radioactive molecules that bind to a receptor, to measure concentrations of endogenous neurotransmitters. Researchers using a PET scan to assess neurotransmitter concentration will administer a radioactive ligand that binds to receptors of the neurotransmitter of interest. Compared to the endogenous neurotransmitter, the radioactive ligand must have a lower affinity for the receptor. Because the radioactive ligand has a lower affinity for the receptor, the endogenous neurotransmitter will dislocate the ligand from the receptor. When researchers know the number of receptors in a specific area of the brain, they measure the concentrations of the unbound radioactive ligand. Measuring unbound concentrations of the radioactive ligand provides an indirect measurement of the bound neurotransmitter.

Currently biochemical assessment of personality has a limited role in applied areas such as psychotherapy or counseling. As these methods are refined, and as new methods are developed, we may begin to elaborate on our current understanding of the biochemical basis of personality. A more developed psychobiological understanding of personality can inform pharmacological treatment used in conjunction with psychotherapy. Additionally, refining the methods for assessing neurotransmitters and hormones related to personality expression will have added benefits for research. If we can reliably and accurately assess biological markers for dimensions of personality, we will no longer have to rely on self-report measures, which are complicated by validity issues.

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Human Genome Project and Personality

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The National Human Genome Research Institute (2015a) describes the Human Genome Project as a collaborative international research program created by the National Institutes of Health, Department of Energy, and institutions of higher learning, including those in the private sector, as a way to completely map and understand all of the genes throughout the human body. Mickel and Miller (2011) stated the goal of the HGP was to not only map the genes, but to make the findings available for more research so that the biological foundations of human behavior and personality could be understood.

History

The double helix structure known as deoxyribonucleic acid or DNA was first discovered in 1953 by James Watson and Francis Crick. This is the chemical compound that comprises the genetic instructions for constructing and upholding living organisms. In the 1970s, the methods for "sequencing" the chemical letters DNA were developed (NIH National Human Genome Research Institute, 2015b).

According to the National Human Genome Research Institute, the first draft analysis of the human genome was published in February 2001 in the journal *Nature* by the International Human Genome Sequencing Consortium. The findings indicated that contrary to previous estimates of humans having well over 100,000 genes they were likely to have 30,000. The final draft of the Human Genome Project was successfully completed in April 2003.

The Human Genome Project since its initiation supported the further investigations of the implications of their research including the ethical and social implications. The National Genome Project Research Institute gives notice that all research, including the data, is on the internet and thus readily accessible to anyone around the world. Biotechnology has experienced a revolution as a result of the Human Genome Project with the U.S. now a key leader.

Science

According to the Genetics Home Reference (2016), a genome contains all of an organism's genes. It is the complete set of DNA in all living things. Cells are the fundamental units of function that make up every living system. DNA in the human genome is arranged into 23 chromosomes containing genes, which contain instructions on how to create proteins. Proteins are an important class of complex molecules found in all living cells. Organs need protein as they are vital in carrying out most of the work in the human body. These proteins are made up of amino acids and function as antibodies, enzymes, messengers, transportation, and storage throughout the body. Mutated DNA can produce an abnormal protein, disrupting the body's regular processes, and can lead to the production of a disease. DNA sequencing refers to the process of organizing DNA strands. Sequencing allows scientists to find mutations in genes linked to diseases.

With the vast amount of data generated about human DNA from the Human Genome Project, scientists and clinicians are better equipped in understanding the role that genetic factors play in complex diseases and many other health problems. The HGP does not only provide better information for looking at diseases, but it can also aid in further research on the development of personality.

Personality

The DNA in genes also accounts for what is termed "instincts": inborn behavioral patterns in living organisms crucial to survival. *Intro to Psychology* (2016) states the genes of members of the same species are about 99.9% the same, but the strength of different behaviors and characteristics varies within species. Personality is the result of multiple genes in collaboration and environmental factors. Having a specific gene pattern does not necessarily predict a certain trait, as some traits may only occur in particular environments. For example, a person might have genes that are related to diabetes, but if the person is careful about their diet and exercising then they decrease their risk.

Genes provide us with the biological basis of the set of traits that form the character of a person, also known as personality. The Human Genome Project has created a reliable basis from which the biological components of personality can be measured. The Human Genome Project has created opportunities for research on understanding more deeply how we define ourselves and others. Fitzgerald and Issacs' (2002) research using the Human Genome Project has identified multiple genetic mutations that are associated with personality. Some examples of these personality traits are belligerence, charisma, cynicism, obsessive compulsive behavior, and gullibility.

In 1997, Dean Hamer noted that personality and behavior, ranging from extraversion to alcohol use, have a significant relationship to genes. Preliminary investigations have linked gene Xq28 to color blindness and self-sufficiency. There is also an association between novelty seeking and the gene D4DR. There is also enough variation in serotonin transporter genes to affect a person's level of neuroticism. This serotonin transporter also has associations with alcoholism, depression, and suicidal behavior.

While some traits have been connected to genetic variants, a lot of these variants have astonishingly small individual and cumulative effects, making it extremely difficult to assess early heritability (Maher, 2008). Genome studies are investigating cases in which the heritability is little understood to shed light on personality traits that are heritable versus those that are not (Maher, 2008). The *Canadian Journal of Psychiatry* states that as technology for looking at the human genome steadily becomes more available, it is crucial that obscure personality phenotypes become more clearly defined. Twin research has provided evidence that genetic factors are involved in personality. Through the use of genetic studies researchers can measure more effectively personality phenotypes that correspond with genetic categories.

Behavioral Studies

In order to decide if traits are biological or genetically related, scientists conduct studies of family and non-family members, including twins, adoptees, and siblings. *Is Personality More Nature or More Nurture?* (2016) proposes that essentially, a particular trait is investigated – genetic link is likely if it is most associated with family versus non-family including environments that are shared and not shared. Adoptive studies are particularly helpful, especially in comparing twins raised by the same parents and those not raised together – how similar are they to each other, their parents, and their adoptive parents? These combined data shed light on personality and its relationship to genes. The Human Genome Project was key in initiating the study of personality using molecular genetics.

Developments from HGP

According to the National Institutes of Health, the Human Genome Project can be credited for helping find 1,800 genes related to diseases. It has made the discovery of such genes a much shorter project, whereas in the past it took years to discover such genes. The Human Genome Project is responsible for current tests that allow individuals to assess their genetic risks for various conditions. It also led to the 2005 development of a map or catalog of common variations in the human genome, the "HapMap." The Human Genome Project has also greatly influenced the field of pharmacogenomics. This is an important field that can be potentially life-saving as it investigates how genes influence a person's responses to drugs. The Human Genome Project can even be credited with cost-savings in genome sequencing, along with these discoveries. In addition to creating a drastic decline in the time it takes to recognize genetic patterns and mutations, the Human Genome Project also led to a dramatic decrease in the cost of sequencing whole exomes and genomes.

Future Implications

While the Human Genome Project has led to many important genetic discoveries such as genetic mutations that led to devastating diseases and personality traits that are genetically based, there is still much more research to be done on the human genome in order to determine

more complex diseases and personality traits. The Human Genome Project sparked an interest across the world in scientists to work toward better understanding the entire human genome. One such example reported by the National Institutes of Health is the development of the "Cancer Genome Atlas," a project to map the genetic abnormalities in the major cancers. NIH's Ethical, Legal, and Social Implications Program will be needed even more in the future to develop a model for further research efforts that deal with ethical issues in a positive manner. The ethical and societal implications will be increasingly relevant when connections between genes and non-medical issues including personality and ability are found. Thus, the implications for ethical and social behavior will increasingly become important as we move forward and discover the power of genes.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Behavioral Genetics, General Features and Methodological Issues
Genetic Bases of Personality

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Model Fitting

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Studying individual differences in psychological variables, like personality, intelligence, mental health, etc., usually ends up in the description of means, variances and standard deviances or covariances between variables. However, although the description of individual differences or covariances between variables is important, these kinds of analyses reveal nothing about the etiology of individual differences and the etiology of a relationship between variables.

A model stating how genetic and environmental effects contribute to the observed variance in a measured variable makes it possible to estimate the influence of the separate variance components. Model building describes the translation of theoretical ideas into a mathematical form. As such, a model may help to develop appropriate study designs to generate the data which is necessary to test some or all predicated relations.

Model fitting means the statistical process of comparing the theoretical predictions with the actual observations in a given population (Neale & Maes, 2004). If the model fails, the theory or at least part of the theory should be revised. If the model fits, it does not mean that the model is "right" in a general sense, but in that case, the model could be used in further analyses which might broaden the scope of the model.

A model is often depicted as a path diagram, which visualizes linear models for the relationship between variables in a diagrammatic form, e.g. a genetic model, a factor model, or a regression model. Based on such a path diagram, expectations for the variances and covariances of variables in terms of parameters of the proposed model can be easily derived. Furthermore, a path diagram can be easily translated into matrix formulas which are used by the standard programs for behavioral genetic model fitting, like OpenMx.

Conventions of Path Analysis

In a path model, observed variables are denoted by squares or rectangles while circles or ellipses denote latent (unmeasured) variables. Single-headed arrows or paths (->) represent hypothetical causal relationships. Thereby it is hypothesized that the variable at the

tail has a direct causal influence on the variable at the head. Double-headed arrows (<->) represent covariances between two variables and may be used to represent the variance of a variable.

Independent, *predictor*, or *exogenous* variables are those variables that do not receive causal input from another variable in the diagram, while those variables that do receive causal input from another variable are referred to as *dependent* or *endogenous* variables.

Path Tracing

The covariance of any two variables in the model is the sum of all legitimate chains connecting the variables. The numerical value of a chain is the product of all traced path coefficients in it. There are three important rules in path tracing (Wright, 1934) which should be followed.

1) Trace backward then forward or simply forward from one variable to another. Include double-headed arrows from the independent variables to itself. These variances will be 1 for latent variables.
2) Loops are not allowed, i.e. it is not allowed to trace twice through the same variable.
3) There is a maximum of one curved arrow per path. The double-headed arrow from the independent variable to itself is included, unless the chain includes another double-headed arrow (e.g. a covariance path).

The expected variance of a variable (the covariance of the variable with itself) is calculated as the sum of all paths from the variable to itself, following the path tracing rules.

The Classical Twin Model (ACE model)

The variance of a phenotype might be deconstructed into contributions of:

a) Additive genetic effects of alleles at multiple loci (*A*)
b) Genetic dominance effects at multiple loci (*D*)
c) Environmental effects shared by twins or sibling pairs raised in the same family (*C*)
d) Environmental effects that make family members differ from each other (*E*).

The observed phenotype, *P*, will be a linear function of the underlying additive genetic deviations (*A*), dominance genetic deviations (*D*), shared environmental deviations (*D*), and specific environmental deviations (*E*) (Neale & Maes, in preparation).

If only one wave of measurement is used and there are not several variables indexing the studied phenotype, residual effects (like measurement error) will form part of the specific environmental variance component.

As mentioned above, with model fitting in behavior genetics it is possible to disentangle the various factors causing individual differences. The number of effects which can be estimated simultaneously is limited by the number of distinctive predictive statistics. In the
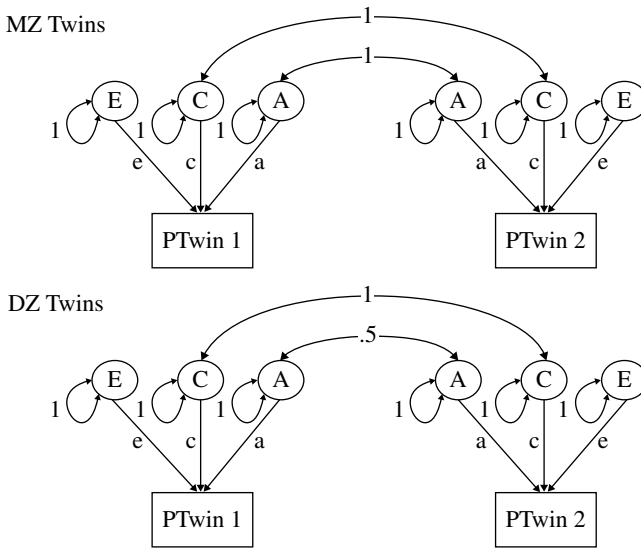
Figure 1 Path diagram for the classical twin model (*ACE*). Parameters *a*, *c*, and *e* are the same across twins and across groups.

classical twin model the available information allows one to estimate at the most three model parameters since there are three distinctive predictive statistics: variance MZ (*VarMZ*), variance DZ (*VarDZ*), and the total variance (*VarP*). Thus, on the basis of twin data it is not possible to estimate genetic dominance effects and shared environmental effects at the same time. An ACDE model would be underidentified and on the basis of reared-together twin data, *C* and *D* would be confounded. As such, it is only possible to estimate genetic effects (additive genetic effects), a^2, genetic dominance effects or shared environmental effects, d^2 or c^2, and specific environmental effects, e^2, at the same time. The twin similarity correlations indicate which of the two components, *A* or *D*, is more likely to fit the data. If the DZ correlation is less than half of the MZ correlation, an *ADE* model might fit the data better. An example for a path diagram fitting the components *A*, *C*, and *E* is shown in Figure 1. The rectangles in Figure 1 represent the actual scores (e.g. sum scores from a self-report inventory for a variable of interest like Extraversion) for each member of a twin pair. The circles represent genetic and environmental factors that might influence the variability of the measured variables: additive genetic effects (*A*), shared environmental effects (*C*), and specific environmental effects (*E*). The straight one-headed paths from the circles to the rectangles represent the hypothetical influences of *A*, *C*, and *E* on the observed variable. These paths are labeled *a*, *c*, and *e*, and the corresponding values are used to compute the heritability estimates and the influences of the shared and specific environment, a^2, c^2, and e^2.

The double-headed curved arrows represent the hypothesized relationship between the latent variables. These values differ for MZ and DZ twins. For MZ twins the curved arrow between the additive genetic effects for each twin would be set at *1.0* because they share 100% of their genetic material (the same would be true for the genetic dominance effects). Because DZ twins share on the average 50% of their genes, the curved arrow between the

Variance of Twin 1 and Twin 2 (for MZ and DZ pairs)

$$a*1*a = a^2+$$
$$c*1*c = c^2+$$
$$e*1*e = e^2$$

Total variance $= a^2 + c^2 + e^2$

Covariance Twin 1 and Twin 2: MZ pairs

$$a*1*a = a^2+$$
$$c*1*c = c^2$$

Total covariance $= a^2 + c^2$

Covariance Twin 1 and Twin 2: DZ pairs

$$a*0.5*a = 0.5a^2+$$
$$c*1*c = c^2$$

Total covariance $= 0.5a^2 + c^2$

Predicted Variance-Covariance Matrix

Cov MZ

	TW1	TW2
TW1	$a^2+c^2+e^2$	a^2+c^2
TW2	a^2+c^2	$a^2+c^2+e^2$

Cov DZ

	TW1	TW2
TW1	$a^2+c^2+e^2$	$0.5a^2+c^2$
TW2	$0.5a^2+c^2$	$a^2+c^{2+}e^2$
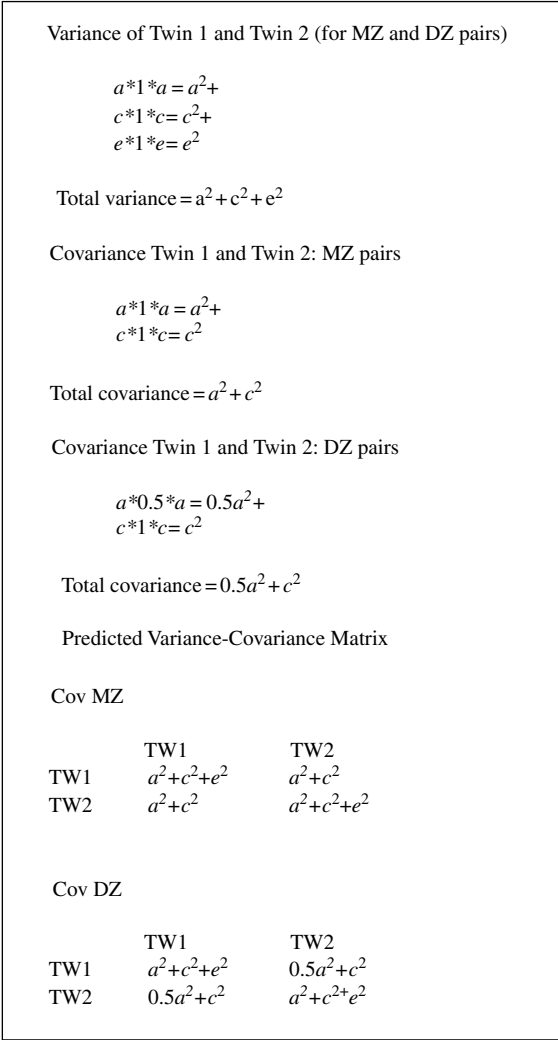
Figure 2 Calculation of variances and covariances for Twin 1 and Twin 2 for MZ and DZ pairs and illustration or predicted variance-covariance matrices for MZ and DZ twins.

additive genetic effects is set to *0.5*. The similarity for genetic dominance effects is *.25* for DZ twins, as such, this path would be set to *0.25*. The path between the shared environmental effects is set at *1.0* for MZ and DZ twins because in a reared-together twin design, both members of a pair grow up in the same home. There is no path between the sources for specific environmental effects (*E*), because – by definition – these effects are unique for each person (MZ and DZ twins).

In model fitting of twin data, it is furthermore assumed that the values for *a*, *c*, *d*, and *e* are the same for Twin 1 and Twin 2, and that the estimates of *a*, *c*, *d*, and *e* for MZ twins also apply for DZ twins. As such these paths are set equal for Twin 1 and Twin 2 and across zygosity.

How Are Models Fit?

The next question that arises is how the observed twin data fits into such a model. The process of model fitting begins by entering some starting values for a, c or d, and e. We find adequate starting values by estimating heritability and shared and specific environmental effects on the basis of twin similarity correlations. In an iterative process, the computer tests several values of a, c or d, and e. The paths with these values are traced through all of the parts of the model to reproduce the observed MZ and DZ correlations as well as possible. If the model-based correlations come as close to the observed correlations as possible, the iterative process stops and the model is said to fit the data satisfactorily (Jang, 2005). The values for a, c or d, and e that were used to produce the model-based correlations are deployed to compute the influence of genetic, shared and specific environmental effects on individual differences in the observed variable (a^2, c^2 or d^2, and e^2).

The statistical program further determines the degree of correspondence between model-based estimates and observed estimates by "taking the difference between the model-based and actual correlations and weighting it by the sample size of MZ and DZ twin pairs" (Jang, 2005, p. 29). The resulting statistic follows a chi-square distribution, thus chi-square tables can be used to test if the model statistically differs from reality. It should be kept in mind that the goal of model fitting is non-significance. There should be no significant difference between the data the model reproduced and the actual data. If the correspondence between model-based estimates and observed statistics is less than acceptable, the model must be modified and the process starts again. The model may be altered by eliminating hypothesized relationships between variables. For example, if there is no significant effect of shared environmental influences, the fit of the model might be improved if the shared environmental path (c) is deleted. A model can be altered in this way until a satisfactory fit is obtained. The possibility to delete or add paths to a model permits the test of several representations of reality. Of course, the resulting model should still theoretically make sense.

The resulting changes in χ^2 provide a statistical means to evaluate the change. This is the actual basis for model fitting and enables tests of significance of genetic, shared, and specific environmental effects.

In the classical *ACE* model, model fitting begins with the full model. Then the shared environmental effects are deleted from the model to evaluate the resulting *AE*. If this model fits the data as well as the full model, shared environmental effects are not significant and could be left out of the model. Usually, a *CE* model and an *E* model are tested as well to determine which model represents the observed data best.

The *ACE* model can be modified in various ways. For example, if it is assumed that heritability varies by gender, a model could be tested which is usually referred to as *sex-limitation model*. Additionally, it is not only possible to test *univariate* models but also *bivariate* or *multivariate* behavior genetic models. With models like *Cholesky decomposition* the etiology of the relation between two or more observed variables could be estimated.

Because a single heritability statistic might not be adequate to describe the individual differences in the whole population, gene–environment interactions (GxE) should be studied. As described by Purcell (2002), a heritability of 50% could mean that (1) for all individuals, differences in the trait are equally due to genetic and environmental effects, or (2) that for half the population the trait is completely genetically determined while for the

other half individual differences are fully explained by environmental influences. The consideration of GxE helps to distinguish between the two mentioned possibilities. To test a GxE model, the *E* component of the GxE must be a measured variable (Purcell, 2002).

See Also

Behavioral Genetics, General Features and Methodological Issues
Twin Studies in Personality Research
Path Analysis in Personality Research
Walter Mischel

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Twin Studies in Personality Research

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Twin studies are used in the field of behavioral genetics (see Behavioral Genetics, General Features and Methodological Issues) in order to estimate the strength of genetic and environmental effects on differences in behavior. Twins are one of "nature's experiments" that can allow researchers to separate the influences of genetic and environmental effects (Plomin, DeFries, McClearn, & McGuffin, 2008).

Methodology

Twins Reared Together

The logic of twin study designs stems from the comparison of two different types of twins. Identical twins, or monozygotic (MZ) twins, share all of their genes because they occur when a single fertilized zygote splits into two. Fraternal twins, or dizygotic (DZ) twins, share only half of their segregating genes (the genes that differ across individuals), and occur when two separate eggs are ovulated and fertilized at the same time. Thus, DZ twins are no more genetically alike than any pair of siblings, although they share a uterus and are of the same age. Comparing the similarity in the two types of twins, therefore, allows for control over age and environmental effects (including prenatal environments) so that differences based on genes can be estimated. Since both twins in each pair are being raised in the same environments, if MZ pairs are more similar than DZ pairs, the conclusion is that there must be genetic effects present that create similarities (and differences) in the trait.

As part of this methodology, researchers can estimate a trait's heritability (see Biological Perspectives), defined as the proportion of differences in behavior that is due to differences in genes. One simple way to do this involves subtracting the DZ twin correlation from the MZ twin correlation and multiplying the result by two. The logic of this calculation is based in algebra which essentially works because MZ twins shared twice as many genes as DZ twins and environments are being controlled, so the difference in the correlations

would be half of the genetic effect and doubling that difference would give the full genetic effect. Twin studies also estimate both shared and non-shared environmental effects. Shared environments make children in the same family similar to one another and non-shared environments make children in the same family different (non-shared environment also includes any measurement error in the trait). Shared environment can be estimated by subtracting the heritability estimate from the MZ twin correlation, since any similarity in MZ twins not due to genetic effects would be due to shared environmental effects (alternatively, shared environmental effects can be found by taking twice the DZ correlation and subtracting the MZ correlation). Any variance left over after accounting for heritability and shared environment would be non-shared environment, such that the three effects would add to 1.0 (or 100%). The heritability estimate calculated this way is a narrow sense heritability, as the calculations assume that all genetic variance is additive (i.e. genes are independently contributing to the trait) as opposed to dominant or epistatic (interactive) effects. Another assumption being made in order for these equations to work is the Equal Environments Assumptions, discussed further below. Another important point is that heritability estimates do not apply to individuals, but to populations. That is, the heritability is accounting for why people are different from one another, not why a particular individual shows a certain pattern of behavior.

More complicated biometric modeling can also be used to calculate heritability and environmental influences, which, instead of using simple algebra, uses the variance-covariance matrices for different types of twins or family relationships and finds the estimates that fit the data best. The model fitting techniques take sample size into account, can examine gender effects, can estimate dominant genetic effects separately from additive effects, and can provide significance and confidence intervals for the estimates.

Twins Reared Apart

A second kind of twin study used in behavioral genetics separates the effect of genes and environments more cleanly: twins reared apart (TRA). These studies involve MZ twins who are adopted at birth and raised in separate homes. Examining how similar these twins are for a trait can help us understand if genes are important in influencing behavior because any similarity seen in the twins must be due to their shared genes. They have not been raised together, so a shared family environment cannot be the cause of their similarity. In this way, TRA provide a direct estimate of heritability. While these twins provide interesting data and are very helpful in understanding genetic effects, the number of such studies, and their sample sizes, are understandably small given the rarity of these twin pairs.

Twin Studies on Personality

Although twin studies of the personality traits of Extraversion and Neuroticism have been most frequent, studies have examined traits from many different inventories, including all Five Factor Model traits (Extraversion, Neuroticism, Openness, Conscientiousness, and Agreeableness; see Big Five), the Eysenck Personality Inventory, the Multidimensional Personality Questionnaire, the California Psychological Inventory, and the Zuckerman

Sensation Seeking Scale, using samples of twins across multiple countries. For various personality traits in various samples, the correlation between pairs of MZ twins is consistently around .40–.50, while the correlation for DZ twin pairs is typically around .20, thus showing genetic effects for personality traits. MZ twins correlate about .40–.50 for personality traits, also supporting a conclusion of genetic influences. Model fitting analyses with twin correlation data lead to the conclusion that around 50% of the differences in personality traits can be accounted for by differences in genes (i.e. a heritability around 50%). This general estimate does not seem to be influenced by the model of personality used, nor does it vary consistently by gender or country of study. The 50% estimate does shift down somewhat, however, when using non-twin methods to estimate heritability (notably family and adoption studies).

Personality in children with traits such as inhibition, shyness, and activity level has also been examined, with findings suggesting that differences in personality at young ages are also partly genetically influenced. A few studies of very young infants, however, have found few genetic effects on personality-related traits, although infant personality is quite different than what is typically measured as personality in adults. In studying the genetic and environmental effects on personality development over time, researchers have concluded that although personality can change across one's life, the stability of personality over time is influenced by genetic effects.

In behavior genetic methodology, a heritability of 50% still leaves 50% of the variance to be explained by environmental effects. A surprising finding in twin studies has revealed that the environment that has the largest effect on personality traits is the non-shared environment, not the shared environment. That is, growing up together does not make siblings similar to one another in personality in adulthood. Researchers have disagreed on what this finding might mean. One interpretation is that environments outside the family home, including peers, are more important in influencing personality and behavior. Another possible interpretation is that siblings in the same home experience contrast and competition effects that make them different from one another instead of similar, and thus, the family matters but not in the way we assume it does. As a related issue, twin studies using parental reports of personality often show much higher heritability estimates that are likely due to contrast effects, where within a family a parent rates MZ twins as being very similar but DZ twins as being more different (where, for example, one twin is thought of as the "outgoing twin" while the other is "quieter," even though the twins' behavior is largely the same). When using behavioral observations, the data collected are less influenced by contrast effects. Thus, some twin studies that have used behavioral reports of personality have found slightly smaller heritability and slightly larger shared environmental effects.

Twin study research on other individual difference personality variables has also been completed, finding genetic effects on differences in relationship quality (e.g. warmth, control, empathy), sexual orientation, self-esteem, attitudes (e.g. traditionalism, political orientation), vocational interests, and happiness and well-being. However, some other variables have shown lower heritability and larger shared environmental influences, including attachment, romantic relationship quality, and religiousness in childhood.

Estimates of heritability found for individual difference traits do not tell us what genes are important in influencing behavior. Twin studies instead provide estimates of an overall genetic effect and whether genes (and environments) are important as an explanation of

why people show different characteristics. Many behavior geneticists are completing molecular genetic studies (see Genetic Bases of Personality) in order to examine what genes on what chromosomes are playing a role for different traits. These studies require sequencing genetic codes not just examining behavioral similarity between relatives of different genetic relatedness. The same is true of the estimates of environmental effects in twin studies – the data tell us only that environments seem to make siblings different, but which environments matter most is not identified. Twin studies also do not tell us the extent to which genes and environments work together to create behavior. Researchers have been designing studies to examine gene-environment interactions (see Gene-environment Interaction) and gene-environment correlations that can help to explain gene-environment interplay. For example, gene-environment correlations reveal that genetic effects are reinforced by environments because people choose and modify their environments in ways that are consistent with their genetic predispositions. Thus, influences that are thought of as genetic might also be environmental. It is certainly true that people with a particular personality choose to be in particular kinds of environments (like someone high on extraversion choosing to go to a noisy party and someone low on extraversion choosing to stay home with a few close friends), and that genes and environments are always simultaneously influencing behavior.

Limitations

Twin studies, like any study, do have limitations. One concern in the twin methodology is the Equal Environments Assumption (EEA). In order for the twin study logic to work, we assume that the environments that MZ twins experience is of equal similarity as the environments that DZ twins experience, such that the only difference between MZ and DZ twin pairs is their genetic similarity. If MZ twins are treated more similarly or have more similar environments, then their excess behavioral similarity might be due to this environment as opposed to their genes. However, tests of the EEA using several different methodologies (e.g. studying similarity in pairs whose zygosity was mis-identified, examining similarity in twins who share more or less measurably similar environments) have generally supported the conclusion that the assumption is an appropriate one to make about twin studies.

Another concern is the prenatal environment that MZ and DZ twins experience and whether both twins in both types of pairs experience similar environments in the womb (as with the EEA). However, research shows that MZ twins are actually more likely than DZ twins to be of different weight at birth. This happens when MZ twins share a chorion (amniotic sac) and/or placenta and have to compete for resources more than DZ twins, who always have different placentas. Thus, this would make some MZ twins less similar with regard to their prenatal development and could not account for why MZ twins are more similar than DZ twins in behavior in childhood and adulthood.

A third concern is whether twins are generally representative of the population at large. If they are not, then the findings of studies using twins might not apply to other non-twin individuals. Twins are more likely to be born prematurely and thus show slower development through infancy, but they catch up quickly. Research has also shown that twins seem to be representative of the general population with regard to the variance they exhibit on most behavioral characteristics, like personality traits.

See Also

Behavioral Genetics, General Features and Methodological Issues
Gene-Environment Interaction
Genetic Bases of Personality
Heritability
Human Genome Project and Personality

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Behavioral Assessment Techniques, General Features and Methodological Issues

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The assessment of personality traditionally focuses on measuring traits and dispositions. Such a perspective is aimed at classifying individuals, and an individual's responses are understood to be a reflection of the underlying dimension that is being appraised.

On the contrary, behavioral personality assessment measures the person-situation interaction. Beyond the controversy regarding the consistency of behavior, the main focus of this perspective addresses the interaction as a sample of behavior that an individual might exhibit when faced with a similar situation. Therefore, behavioral personality assessment is aimed at measuring a person's behavior in specific situations.

From a procedural viewpoint, the traditional personality assessment tests use almost exclusively self-reports, while behavioral personality assessment is mainly based on observing and recording the psychological response. Information gathered using personality questionnaires is what the British psychologist R. B. Cattell (1905–1998) called "Q-data."

Conversely, behavioral personality assessment mainly observes and records an individual's behavior in either a natural setting or in a situational lab, in testing and/or in assessment settings. Task-based (i.e. testing settings) performance information is what Cattell termed "T-data." T-data, together with Q- and L-data, which is a person's life record that originates from observations made by others, make up Cattell's three sources of information used to assess dispositional variables.

Behavioral Personality Assessment Techniques

Behavioral approaches have provided an important list of assessment techniques; however, most of them are devoted to assessing the behavior directly involved in the behavioral change according to the main focus of the perspective. Four main types of techniques can be distinguished: self-monitoring techniques, self-report behavioral inventories and

checklists, self-statement inventories, and other forms of assessing thoughts and feelings, and direct observation (Carducci, 2015).

Self-monitoring Techniques

Self-monitoring is the process of observing one's own behavior and producing records of it using self-monitoring cards. Self-monitoring enables a record of occurrence, frequency, intensity and/or duration of a wide range of overt and covert behavior. Self-monitoring techniques facilitate the recording of behavior at the time that it occurs. However, although this is an advantage it is also its major downfall: observing one's own behavior might result in a modification of that behavior.

Self-report Behavioral Inventories and Checklists

Self-report behavioral inventories and checklists typically record the frequency and/or the extent to which individuals are engaged in a series of behaviors in different situations. One very extended example is the Fear Survey Schedule (Wolpe & Lang, 1964) which is aimed at identifying the level of fear a person feels over a range of common situations or stimuli. As standardized procedures, many of them have probed their psychometric properties. Nonetheless, these methods rely on self-reporting by the individual and as such are susceptible to biases.

Self-statement Inventories and Other Forms of Assessing Thoughts and Feelings

When the behavioral approaches started to include cognitive events as antecedents of behavior, many different instruments were designed to assess a person's thoughts and feelings. Some of them are standardized instruments, such as self-statement inventories in which individuals are asked to indicate the extent to which each statement applies to them, e.g. the Automatic Thoughts Questionnaire (Hollon & Kendall, 1980). Others are created ad hoc for thought sampling in specific situations, e.g. What thoughts do you experience when interacting with people of the opposite sex?

Direct Behavioral Observation

Direct behavioral observation consists of a set of procedures in which the subject's target behavior is systematically observed and recorded after developing operational definitions. The methods used for direct behavioral observation range from naturalistic observation in daily life settings, in which observers may or may not be involved, to role playing where the individuals play the role assigned to the assessment purpose, to controlled observation in which structured situations are presented to the person being assessed. The reliability of direct behavioral observation relies on inter-observer agreement whereas its validity relies upon the accuracy of the temporal and situational sampling, as well as the accessibility of the behavior to external observers.

Objective Personality Assessment: A Task-based Assessment

A version of direct observation in a controlled situation specifically designed for the assessment of personality are the so-called Objective Personality Tests, based on the work of Cattell (Cattell and Warburton, 1967). Cattell developed more than 500 objective tests for assessing different personality facets. His aim was to portray personality based on the three sources described above, i.e. "Q-," "L-," and "T-data." However, in spite of his holistic approach to measuring personality and the originality of his tests, there was a lack of correlation between the results from different sources supposedly assessing the same dimension. At about that time, personality psychology was in the middle of the consistency debate originally posed by Mischel (1968). The discrepancy between self-reported data and direct behavioral information led to a bitter controversy about what personality is, and how it can be assessed. This controversy highlighted the lack of a complete and universal model of individual psychological functioning and sent Cattell's attempts to create an objective-behavioral-based personality assessment into oblivion.

Nevertheless, the development of behavioral personality theories going further than the pure analysis of current situations (see Staats, 1996) led to a renewed interest in an objective performance-based personality assessment. This progress was greatly helped by the rise of the interactionist models (Bandura, 1978; Ribes & Sánchez, 1992). These models proposed that behavior is the product of the interaction between an individual with an ontogenetic development, i.e. biological, psychological, and social development, and a specific situation with its specific characteristics. The interaction might produce changes in both the situation and the person. Therefore, changes in behavior are a function of changes in the setting, as the mainstream behavioral outlook has been established, as well as the idiosyncratic characteristics of the person involved.

From this point of view, an individual's personality is shown through consistent and stable behavioral tendencies when facing a specific type of setting. Therefore, assessing personality demands that the measuring procedure does not bias the person's idiosyncratic way of behavior. Otherwise, behavioral tendencies could not be accurately assessed. For example, imagine that we are interested in assessing an individual's tendency to break the rules: Such idiosyncratic behavior could be shown when driving in terms of compliance with traffic lights and signs. However, if a police officer was placed in a visible spot and was watching and giving a ticket to those who broke the law, the lack of transgression is not showing the individual's idiosyncratic behavior, but only the response to the specific characteristics of the setting and the associated contingencies.

Behavioral personality assessment approaches attempt to capture a person's usual way of behaving in order to predict their future behavior when facing an equivalent situation, in which the contingencies do not force only one rewarded response. Consequently, this is a task- or behaviorally-based assessment: the assessment is based on what the person does, instead of what they say they would do.

Designing objective task-based personality assessment tests demands two prerequisites, on the one hand testing the consistency and stability of the behavior related to the dimension under investigation. Therefore, the person should be faced with different settings in order to identify behavioral patterns or tendencies. In other words, if consistent behavior emerged, a direct relationship between the dimension explored, e.g. rule transgression,

risk propensity, impulsivity, thoroughness, etc., and the behavior analyzed can be assumed. On the other hand, choosing a task or a context in which a type of behavior could be expected will be revealed. The specific setting shapes the behavior and consequently, the personality dimensions that could be assessed. This is to say that only those contexts in which individuals have to face alternatives with different probabilities and pay-offs can be useful for assessing risk propensity.

Once the task has been selected, it should enable the person to show different responses all of which would result in the achievement of the goal or reward. For example, if we were assessing risk propensity, the task should allow the individuals to win the same prize irrespective of them opting for a consistent selection of those alternatives with a higher pay-off but a lower probability of occurrence, or for a consistent choice of those alternatives with a lower pay-off but a higher probability.

Because behavioral task-based personality assessment is aimed at assessing an individual's idiosyncratic way of behaving, the recorded response ought not to rely on the person's skillfulness. Otherwise, a different dimension might veil such idiosyncratic tendencies. Similarly, in successive trials, the items or experiments should not foster the individuals' learning in order to avoid test biases.

According to the above, task-based personality assessment tests should join the universal characteristics of ability tests. First, the individuals should be inexperienced in the test situation. In other words, the tasks involved must be novel for the assessees. Second, there should not be any feedback about the person's performance; otherwise, their previous results might affect their subsequent behavior instead of showing the particular individual propensity. Third, the assessment objectives must be veiled. The individuals should not be aware of the number of trials, the results of their performance, or the total length of the test. Regarding the length of the test, Cattell suggested that it should be no longer than five minutes. Finally, the instructions ought to promote the interaction between the individual and the task; therefore they should be clear and accurate. Instructions play an essential motivational role; otherwise, the results would not show the person's idiosyncratic way of behaving but rather a random sample of their behavior, the greater the score range and the larger the inter-individual variability, the better discrimination.

Behavioral Personality Assessment Techniques: Strengths and Limitations

Behavioral approaches center on behavior as the main assessment focus. Contrary to the traditional personality assessment, behavior is not a sign of an intra-psychic characteristic but a sample of the idiosyncratic way an individual behaves. Thus, behavioral assessment emphasizes the systematic observation of behavior.

Behavioral assessment, more focused on behavioral change than on sponsoring a personality theory, has promoted the use of instruments to record the behavior of individuals in a given situation. Therefore, they usually insist on situational characteristics in which the behavior is shown and usually rely on what people do, instead of what people say they usually do. Nonetheless, measurement tool standardization has not been a major concern, coexisting with instruments that psychometrically meet the criteria and some others

created ad hoc. Furthermore, the absence of a generally accepted behavioral personality theory results in a lack of guidelines to indicate which behavior and which contexts should be studied.

However, the recovery of Cattell's objective personality testing tradition has paved the way for the study of personality from a behavioral perspective. First, behaviorally task-based personality assessment should promote new tasks that the individuals are unaware of, and without feedback on their performance in order to prevent any discrepancies in their usual idiosyncratic way of behaving. Second, individuals should be encouraged to cope with the task. Finally, the task must be easy enough to avoid the assessment of ability instead of personality.

See Also

Cognitive-Behavioral and Cognitive Self-report Assessment Techniques
Nonverbal Personality Questionnaire (NPQ)
Self-monitoring Behavioral Assessment Techniques

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Behavioral Assessment Techniques of Personality in Children

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Behavior rating scales and checklists measure the occurrence of behaviors and assess personality and individual differences in youth. Assessment data are used to inform potential intervention strategies and are considered multi-source (i.e. include teacher, parent, and self-report forms) and multidimensional (i.e. assess variety of problems or adjustment issues).

Four sets of behavioral instruments will be discussed in this entry. First, the Achenbach System of Empirically Based Assessment (ASEBA) contains five forms commonly used in child and adolescent assessment. Each rating form contains overlapping groupings or scales across informants (see Table 1). In the parent-report versions of the Child Behavior Checklist (i.e. CBCL/1 ½; CBCL/6–18), parents rate 100 items for children. For older children, parents endorse 113 items and an additional school competence scale. The child's perspective is obtained using the 112-item Youth Self-Report (YSR) scale. For preschool-aged children, teachers or caregivers rate 100 items administered in the Caregiver-Teacher Report Form (C-TRF). Teachers can also endorse 113 items on the Teacher Report Form (TRF) that assess adaptive functioning (i.e. academic performance, working hard, behaving appropriately, learning, and happy), but unfortunately, these data cannot be compared across informants.

The ASEBA scales have advantages and disadvantages as assessment tools. The addition of the Diagnostic and Statistical Manual of Mental Disorders Fifth Edition (DSM-V) scales is beneficial because the scales are based on updated diagnostic criteria. On the other hand, a potential weakness of the instruments is that the normative data is gender-specific. Issues regarding gender norms will be discussed later in this entry. A thorough overview of the normative data, reliabilities, and validities for behavioral scales is included in the "Broad measures of behavioral, social, and emotional functioning and of parenting and family variables" chapter written by Sattler & Hoge (2006) in *Assessment of Children: Behavioral, Social, and Clinical Foundations* (5th ed.).

Table 1 Overlapping Characteristics in the ASEBA Instruments

Measure component	Overlapping characteristics and instruments
Child ages	1 ½–5 (CBCL & C-TRF); 6–18 (CBCL & TRF); 11–18 (YSR)
Scaling	0–2 (*Not true* to *Very true, Often true*)
Total score	Total competence score (CBCL/6–18 & YSR only)
Competence scales	Activities and social (CBCL/6–18 & YSR only)
Syndrome groupings	Externalizing, internalizing, and total problem syndrome (All)
Externalizing scales	Aggressive behaviors (All)
	Attention problems (C-TRF & CBCL/1 ½–5 only)
	Rule breaking behaviors (CBCL/6–18, TRF, YSR only)
Internalizing scales	Somatic problems and anxious/depressed (All)
	Withdrawn/depressed, attention problems, thought problems, and social problems (CBCL/6–18, TRF, YSR only)
	Withdrawn and emotionally reactive (C-TRF & CBCL/1 ½–5 only)
	Sleep problems (CBCL/1 ½–5 only)
DSM-oriented scales	Anxiety problems, attention-deficit/hyperactivity problems, depressive problems, oppositional defiant problems (All)
	Somatic problems, conduct problems (CBCL/6–18, YSR, TRF only)
	Autism spectrum problems (C-TRF & CBCL/1 ½–5 only)

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The second group of measures is the Conners 3rd edition (Conners 3). Table 2 illustrates the overlapping characteristics of different versions of the questionnaire by reporter type. The Conners 3 umbrella includes three forms to assess behavior problems with an emphasis on externalizing behaviors. All of the assessments include a full-length and a short version for each rater. Full-length forms are recommended for comprehensive reports and short forms are appropriate when the scale is administered more than once or administration time is limited.

The Conners 3 – Parent (Conners 3–P) short form includes 43 items and the long form has 110 items. Teachers can endorse children on either 39 or 115 items on the Conner's 3 – Teacher (Conners 3–T). The Conners 3 – Self-Report (Conners 3–SR) includes 39 or 99 self-report items and includes a family relations scale. Similar to the ASEBA scales, the scoring for the Conners symptom scales are updated with the DSM-V criteria.

Table 3 displays the third set of assessments. Personality Inventory for Children, 2nd edition (PIC-2) is a questionnaire that assesses behavioral, emotional, cognitive, and interpersonal adjustment for children between the ages of 5–19. Parents rate youth on 275 items that link to nine scales. Each adjustment scale includes two or three subscales and first 96 PIC-2 items can obtain an abbreviated adjustment score for eight of the nine scales.

The Student Behavior Survey (SBS) scales and scoring differ from the scales on the Personality Inventory for Youth (PIY) and the PIC-2 because teachers endorse 102 items to assess children's behavior as well as academic performance and habits. Teachers rank

Table 2 Overlapping Characteristics in Conners 3 Assessments: Full-length (F) and Short (S) Forms

Measure components	Overlapping characteristics and instruments
Child ages	6–18 (Conners 3–P & Conners 3–T); 8–18 (Conners 3–SR)
Scaling	0–3 (*Never, Seldom* to *Very often, Very frequently*)
Scales (S)	Inattention, hyperactivity/impulsivity, learning problems, and aggression (All)
	Executive functioning and peer relation (Conners 3–P & Conners 3–T only)
Indexes	Conners 3 ADHD Index (All, F only)
	Connors 3 Global Index (i.e. total, restless-impulsive, and emotional lability subscales
	Conners 3–P & Conners 3–T, F only)

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Table 3 Scales in the Personality Inventory for Children, 2nd ed. (PIC-2), the Student Behavior Survey (SBS), and the Personality Inventory for Youth (PIY)

Measure components	Overlapping characteristics and scale description
Scaling	T/F (PIC-2 & PIY)
PIC-2 & PIY Scales	Cognitive impairment, impulsivity and distractibility, delinquency, family dysfunction, reality distortion, somatic concern, psychological discomfort, social withdrawal, and social skills deficits
SBS Scales	Academic performance, academic habits, social skills, parent participation, health concerns, emotional distress, unusual behavior, social problems, verbal aggression, physical aggression, behavior problems, attention-deficit/hyperactivity, oppositional defiance, and conduct problems
Validity Scales	Inconsistency, dissimulation, and defensiveness (PIC-2 & PIY)

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academic performance items on a five-point scale (i.e. *deficient, below average, average, above average, superior)*, and endorse other behavioral items using a four-point scale (i.e. *never, seldom, sometimes, usually*). The scoring includes unique scales (i.e. parental participation and support for academics) that support a focus on school context and the teacher's perception of parental involvement. In contrast, because the SBS addresses different factors, comparisons to the PIC-2 and PIY are limited.

Personality Inventory for Youth (PIY) is a self-report inventory consisting of 270 items. Some of the subscales differ from the PIC-2, but overall the assessments are similar and support cross-comparisons. The validity scales in the PIY and PIC-2 help clinicians determine the value of the data. For example, children may display elevated dissimulation suggesting a tendency to "fake bad." Or children may exhibit inconsistency when rating highly correlated items or indicate an inclination of denying common problems (i.e. high scores on defensiveness). Potential limitations of all of the measures are completion time and child fatigue.

The final behavioral instrument, Behavioral Assessment System for Children 2nd edition (BASC-2nd Ed.), is designed to assess personality in youth. The assessments address adaptive and problem behaviors. Overall, the Parent Rating Scale (PRS) and the Teacher Rating Scale (TRS) are considered complementary (see Table 4). Despite the similarities, the PRS has an additional primary scale (i.e. activities of daily living) and the TRS has two additional primary scales (i.e. learning problems and study skills) and an additional composite (i.e. school problems). The SRP differs significantly because the assessment has children rate True/False items in addition to items on a 0–3 scale.

Similar to the PIC-2, strengths of the BASC-2 are the inclusion of a "fake bad" and a Consistency Index. Also, the BASC-2 Response Pattern Index measures the differences of responses in relation to the previous response. A weakness is that clinicians may be unfamiliar with definitions of constructs on the SRP and may require more time to interpret the data.

All of these instruments exhibit measurement strengths and are commonly used to assess youth; however, four general issues exist with behavioral measures. The first issue is referred to as informant discrepancies, or low correlations of responses across informants. More specifically, raters express higher correlated endorsements when they observe a child in similar settings (e.g. teachers and mental health workers) compared with raters who observe children in different settings (e.g. teachers and parents). These discrepancies can be viewed as a source of error (in other words, as a methodological nuisance) or as meaningful information regarding differences in how a child is perceived. Clinicians stress

Table 4 Overlapping Characteristics of the Behavioral Assessment System for Children 2nd Edition Assessments (BASC-2)

Scale components	Overlapping characteristics and instruments
SRP ages	Child (SRP-I) 6–7; (SRP-C) 8–11; Adolescent (SRP-A) 12–21
TRS & PRS ages	Preschool (PRS-P; TRS-P) 2–5; Child (PRS-C; TRS-C) 6–11; Adolescent (PRS-A; TRS-A) 12–21
Scaling	0–3 (*Never* to *Almost always*; All)
Primary scales	Anxiety, attention problems, atypicality, depression, hyperactivity (All).
	Adaptability, aggression, and conduct problems (C & A only), functional communication, leadership (C & A only), social skills, somatization, and withdrawal (TRS & PRS only)
	Attitude to school and attitude to teacher (C & A only), interpersonal relations, locus of control, and relations with peers (SRP only)
Composites	Behavioral symptoms index, externalizing problems, internalizing problems, and adaptive skills (TRS & PRS; C & A only)
	Emotional symptoms index, inattention/hyperactivity, internalizing personal adjustment, and school problems (SRP; C & A only)
Content scales	Anger control (All)
	Bullying, developing social disorders, emotional self-control, executive functioning, negative emotionality, and resiliency (TRS & PRS only)
	Ego strength, mania, and test anxiety (SRP only)
Validity scales	F-index, Consistency Index, and Response Pattern Index (All)

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the importance of collecting data from multiple sources because the discrepancies represent meaningful differences in the child's interactions with different raters.

Second, disparities in construct definitions across rating scales pose another challenge. Currently, we lack consistent operational definitions that cut across measures; we also lack data showing relationships between construct definitions and critical aspects of child psychopathology (i.e. diagnosis, prognosis, or etiology). For example, externalizing and internalizing symptom groupings are common classes used to understand syndromes in the DSM, rather than the constructs themselves. Moreover, because instruments use different items or subscales across measures, the constructs are incomparable. An awareness of construct differences may benefit clinicians.

Third, the way in which normative data and raw scores are compiled and compared to standardized data is inconsistent across measures. Many tests use separate gender norms, but the BASC-2 provides both combined general norms and separate gender-specific norms. Best norms may depend on the clinical question. Clinicians who are interested in the child's deviance from same age peers may consider using combined gender norms. In contrast, if gender differences are believed to result from a reporting or measurement artifact, then separate norms are a better option.

Fourth, the widespread uses of T scores can create additional challenges. Most report measures communicate results using standardized T scores as scale scores and for comparison purposes. Unfortunately, T scores may be derived in different ways that do not always follow the principles associated with a normal distribution. Moreover, when raw scores are transformed into truncated T scores that include several raw scores, the result is a loss of variability. Thus, researchers should use raw scores for statistical analysis. Finally, best practice should include an awareness of how T scores and standard scores are generated across tests to support accurate interpretations.

See Also

Cognitive-Behavioral and Cognitive–Self-report Assessment Techniques
Person-Situation Interactions

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Cognitive-Behavioral and Cognitive–Self-Report Assessment Techniques

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Cognitive Behavioral Therapy

Cognitive Behavioral Therapy (CBT) marked a revolution in traditional approaches to clinical psychology. Albert Ellis' Rational Emotive Behavior Therapy (1950s) and Aaron Beck's Cognitive Therapy (1960s) were the first to intentionally recognize the importance of cognition in affecting emotions and behaviors. Both Ellis and Beck examined psychological distress from an empirical lens that was elegant in its simplicity. They hypothesized that irrational thinking (i.e. "I am no good") mediated the relationship between an event (i.e. a relationship break-up) and emotions (i.e. sadness) and behaviors (i.e. isolating, self-harming) related to the event. CBT differed from the complex theoretical models of Psychoanalysis in the early 1900s and the reductionist Behaviorism of the 1940s, and has since been recognized as one of the most empirically supported treatments for depression, anxiety, and a growing number of other psychological disorders.

Assessing Cognition

Cognitive-behavioral assessment studies cognitions, including beliefs and mental images, and behaviors. Beliefs are composed of verbal thoughts (i.e. "they will hear me stutter"). Mental images are sensory representations; imagining that one is stuttering and everyone is laughing (Hales et al., 2015). After identifying cognitions, cognitive-behavioral assessment examines the emotions (i.e. anxiety) and behaviors that follow (i.e. avoiding public speaking) in order to challenge irrational thinking and improve upon behavioral deficits (i.e. avoiding social situations) or decrease behavioral excess (i.e. overeating).

The core concerns of cognitive-behavioral assessment fall into three categories as described by Brown and Clark: internality, accuracy, and accessibility (2015). Internality refers to the abstract, private, and intangible nature of cognition. Although advances in neuroimaging have allowed a closer look inside the brain, and cognitive assessments are

constantly being examined, reworked, and refined, it is unlikely that any measure will ever be able to objectively quantify cognition. Accessibility is the second obstacle: can the client access and identify their cognitions as requested in the assessment? Cognitive assessment tools will not work for all clients or participants, as limitations may exist in the way of language, vocabulary, insight, motivation, etc. Also of concern is accuracy. Individuals may believe they are accurately reporting their experience of the event, but human memory is not infallible and is subject to distortion, especially over time (Loftus & Palmer, 1974). The subjective nature of language and the potential for insincere reporting are also concerning.

Informal Assessment

Informal assessment includes self-monitoring techniques such as filling out thought records or diaries. For example, Albert Ellis created the ABCDEF model in which clients identify and record: (A) the *A*ctivating event, (B) *B*eliefs surrounding the event, (C) emotional and behavioral *C*onsequences of beliefs, (D) *D*ebating the irrational beliefs, (E) the *E*ffect of debating the beliefs, and (F) the new *F*eeling that is created (Ellis & Dryden, 2007). In his book, *Feeling Good: The New Mood Therapy,* Burns (2008) created the triple column technique based on Beck's Cognitive Theory. The client (1) writes down critical thoughts, (2) identifies distortions, and (3) talks back to these distorted thoughts. Other helpful assessment tools include saying thoughts aloud, recording thoughts with "thought listing," "thought sampling," or "event recording," or monitoring thoughts (in vivo self-reports; Cacioppo & Petty, 1981; Davi son, Vogel, & Coffman, 1997).

Formal Assessment

More formal self-report assessment measures exist and some can be syndrome specific. Several established instruments are categorized and briefly described below.

Other Means of Assessment

Cognitive Functional Analysis (Meichenbaum, 2003) examines an individual's internal dialogue, including what occurs before (the antecedent) and after (the consequence) the dialogue. For example, a person may be anxious when they return to their hometown (antecedent), making self-statements such as, "my old classmates will think I'm a failure," and as a result drink excessively (consequences).

Physiological data is also used in cognitive assessment (Berntson & Cacioppo, 2004). Biofeedback can measure the bodily functions of an individual and provide feedback about their physiological state, such as their heart rate, galvanic skin response, blood pressure, etc. A portable biofeedback device which measures heart rate has been an effective complement to CBT for people with anxiety (Reiner, 2008) With increasing technological advances, biofeedback is likely to become more sophisticated and accessible, perhaps improving the reliability and validity of cognitive assessments.

Table 1 Examples of Formal Assessments

Disorder	Inventory	Authors	Description
Depression	Attributional Style Questionnaire	Peterson, Semmel, von Baeyer, Abramson, Metalsky, & Seligman, 1982	Measures attributional style; participants report their reactions to six positive and six negative events
	Automatic Thoughts Questionnaire	Hollon & Kendall, 1980	30 items; measures frequency of maladaptive thoughts
	Beck Depression Inventory-II	Beck, Steer, & Brown, 1996	21 items; measures cognitive, emotional, and physical symptoms of depression
	Dysfunctional Attitudes Scale	Weissman & Beck, 1978	40 items; measures maladaptive beliefs/schemas identified by Beck
	Beck Hopelessness Scale	Beck, 1988; Beck & Steer, 1993	20 items; rates how pessimistic the individual is towards the future; indicates a person's level of depression
Anxiety	Anxious Self-Statements Questionnaire	Kendall & Hollon, 1989	32 items; records content, frequency, and severity of specific anxious thoughts
	Fear Survey Schedule - III	Wolpe & Lang, 1977	Measures level of anxiety/fear of stimuli. Several adaptations exist for use with children, adolescents, adults and those with intellectual disabilities
	Irrational Beliefs Test	Jones, 1968	100 items; measures irrational beliefs
Eating disorders	Eating Attitudes Test - 26	Garner, Olmsted, Bohr & Garfinkel, 1982	26 items; screening instrument for eating disorders; three subscales: "dieting," "bulimia and food preoccupation" and "oral control"
Social skills	School Social Behavior Scale -2 and Home and Community Social Behavior Scales	Merrell, 2008; Merrell & Caldarella, 2008	Both have 65 items that measure a child's social-emotional strengths and risky behaviors at school, home and the community on two major scales: social competence and antisocial behavior
	Wolpe-Lazarus Assertiveness-Scale	Wolpe & Lazarus, 1966	30 items; measures assertiveness
Measures for children	Children's Depression Inventory-2	Kovacs, 2010	28-items; assesses depression in children
	Multi-dimensional Anxiety Scale for Children-2	March, 2012	50-item self and parent forms indicate symptoms related to anxiety disorders for ages 8 to 19 years old

Psychometrics: Issues with Reliability and Validity

Reliability and validity assess the psychometric soundness of an instrument. The reliability of retrospective self-report on one's own cognitions is limited. A person's ability to attend to and observe their thoughts and emotions as well as articulate them may fluctuate based on mood, stress, honesty, introspective ability, and different interpretations of rating scales between test takers. Owing to the difficulty communicating with children about such abstract topics as cognition and emotion, the assessment of psychopathology in children is more focused on overt behavior than internal thoughts.

The strengths of self-report inventories are that they have strong face validity and are easy to administer and to score. Whether or not the measure is actually valid is established through a variety of methods, including statistical analysis and empirical research. Owing to CBT's emphasis on empirical validation, it is not surprising that many of the formal assessments mentioned above have established their psychometric soundness. The Beck Depression Inventory (BDI; Beck, Steer, & Brown 1996) is one of the most empirically studied cognitive assessments of depressive symptomatology. It has strong internal consistency ($\alpha = .92$) and high concurrent validity ratings with other depression instruments such as the Hamilton Depression Scale (Beck et al., 1996).

Cross-Cultural Considerations

Cognitive-behavioral measures have not been sufficiently studied across a broad range of cultures (Bemal & Scharrón-del-Río, 2001). Assessing when a thinking style is "problematic" is difficult due to variance in social norms, language, and cultural values in diverse populations. Helms (1992) has argued that cognitive assessment often defers to an "unacknowledged Eurocentric perspective," and instrument developers should coauthor with other professionals with expertise in multicultural topics rather than sufficing to mention that instruments may not take into account the full spectrum of cultural considerations.

Whether the client belongs to a collectivist or individualist culture can influence the results of a cognitive assessment (Brown & Clark, 2015). For example, people from individualistic nations reportedly draw from their own subjective emotional experiences to understand their cognitions and emotions, whereas individuals from collectivistic countries rely more heavily on cultural values as a basis for such judgments. Assessment in diverse populations can include various types of Cognitive Functional Analysis, such as for depression (Ferster, 1973) or avoidance (Hayes, Wilson, Gifford, Follette, & Strosahl, 1996), the Culturally Informed Functional Assessment (CIFA; Tanaka-Matsumi, Seiden, & Lam, 1996), and the Multicultural Assessment Procedure (MAP).

Current Trends in Cognitive-Behavioral Assessment

Current researchers face the challenge of maintaining the research momentum as advances in cognitive assessment are critical. Connecting cognitive-behavioral assessment with neuroscience (neuroimaging, biofeedback, pharmaceutical interventions, etc.) may be a fruitful area to explore in this endeavor. Additionally, recent research has indicated that mental imagery has a greater impact on both negative and positive emotions than previously

thought (Holmes, Mathews, Dalgleish, & Mackintosh, 2006), which requires further study on how to accurately assess it. Furthermore, greater emphasis on collecting real-time cognitive content in the naturalistic setting is needed (i.e. thought sampling), especially in light of the new opportunities afforded by apps and smartphone technology, such as iCBT, an internet CBT tool developed to modify biases and reduce negative thinking using a simple computer program (Andrews, Cuijpers, Craske, McEvoy, & Titov, 2010).

See Also

Behavioral Assessment Techniques, General Features and Methodological Issues
Cognitive Methods in Personality Research
Reliability, Issues of
Validity, Issues of

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Self-monitoring Behavioral Assessment Techniques

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Conceptualizations

According to prior reports, including one by Jo Webber and colleagues in 1993, self-monitoring techniques involve a client observing and somehow noting their own behaviors, feelings, or thoughts. The information that is monitored could be quantitative or qualitative in nature. As a behavioral method of assessment, self-monitoring has been observed as an effective method that allows for a firsthand assessment of one's internal and external thoughts, feelings, and behaviors. Self-monitoring techniques can provide assessment, change, or maintenance of behavioral patterns. Whether done electronically, on paper, or even by merely acknowledging one's conscious thoughts, self-monitoring can play a role in assessment that retrospective or externally administered methods cannot. It can also play a role in clinical practice and has been used extensively in Cognitive Behavioral Therapy (CBT) interventions (for further elaboration on these see Cohen, Edmunds, Brodman, Benjamin, & Kendall, 2013).

A General Description of Self-monitoring Techniques

Webber and colleagues in 1993 provided a history and description of self-monitoring. Self-monitoring was primarily used for research purposes, allowing participants to self-report data. This assessment method also provided a practical and otherwise unobtainable measurement of the frequency of certain target behaviors. Over time it has additionally been used as a method for actually *changing* behavior (including an instance of changing oral self-care behavior documented by Schwarzer, Antoniuk, & Gholami, 2015). Also, self-monitoring allows for the collection of data involving unseen or abstract behaviors such as thoughts, desires, or ideations. Webber and colleagues (1993) note that self-monitoring assessments can include noting each incident of a behavior or assessing a behavior using an external set of criteria. The act of self-monitoring may be prompted in different ways. Some methods will rely on an external prompt, such as a physical cue (a tone or a visual signal) that signals

to the person that they need to record the target behavior/thought/feeling at that time. Another method is internal, or self-prompted, where the person makes a recording whenever they think about it, as noted by Peterson & Tremblay in 1999, and Webber et al. in 1993. Self-monitoring has been utilized as a behavioral technique to reduce problem behaviors for a variety of issues including diet, smoking, and weight gain in children and adults. Existing theories have attempted to explain the effectiveness of self-monitoring techniques and how they might produce lasting changes in behavior. Three such theories are described in a review by Webber, Scheuermann, McCall, & Coleman in 1993, and are summarized below.

Theories of Self-monitoring and Behavior Change

Several theories have been proposed to explain the effectiveness and processes of self-monitoring; three of the more prominent are described by Webber and colleagues in their 1993 article. One states cognitive self-awareness of behavior is powerful enough to change behavior due to cognitive processes. Another indicates that reactivity, or behavior change, occurs in response to the activating event of self-monitoring, and that consequences are developed internally by the person. The mere monitoring, according to this view, has turned into a means by which one will feel reinforcement or punishment based on internal constructions. Still another assumes that the procedures of self-monitoring cause change because they serve as prompts. Therefore both behavioral and cognitive factors play a role in the efficacy of self-monitoring techniques.

Content of Typical Self-monitoring Assessments

The purpose of self-monitoring is the collection (and potential use) of information, and this information may exist in various forms. Barton and colleagues state in their 1999 report that multiple categories of self-monitoring exist, and that articles using self-monitoring as a data collection method have gathered various types of information from participants. The following section describes some different types of information self-monitoring can provide.

Behaviors

One type of self-monitored information is behavior. Self-monitoring behaviors involves bringing certain behaviors into conscious awareness for a variety of purposes. Some examples of behaviors one might self-monitor include:

- The number of sodas you drink in a particular week
- How many times you shake someone's hand at work
- The number of cigarettes you smoke each day
- How often you shower
- How frequently you say "um" in a conversation

There are many "recordable" behaviors that can be self-monitored. Self-recording the frequency, location, timing, etc. of behaviors could allow an individual to increase awareness

of the behaviors, identify and acknowledge their maladaptive effects, or even change or eliminate them.

Thoughts or Cognitions

Another type of information that can be self-monitored includes cognitive factors such as thoughts and feelings. Cohen and colleagues in 2013 describe the importance of self-monitoring techniques to CBT interventions, which place a heavy emphasis on the role of thoughts in associated feelings and behaviors. An individual might monitor thoughts to bring maladaptive, disruptive, or impractical thoughts into consciousness and allow for acknowledgment that these thoughts are leading them to feel or behave in a certain way. This identifies an advantage of self-monitoring over other forms of monitoring (such as an objective observer or remembering past behavior) because thought monitoring is not something that can be done externally, and thoughts cannot be accurately collected an observer. Rather, this information is self-reported. Some examples of self-monitored thoughts might include the results of asking a participant to record each time they:

- Think about suicide
- Think about their mother
- Think about wanting to smoke a cigarette
- Think about an ex-partner
- Think about eating food

The identification or conscious awareness of thoughts and their frequency could provide insight that leads to increased self-understanding and behavior change, and this information has been of particular interest in CBT interventions, as noted by Cohen and colleagues in 2013.

Feelings and Emotions

An individual's in-the-moment feelings and emotions might also be reported using self-monitoring. Typically, spontaneous self-reported feelings and emotions are collected using established measures designed to assess specific feelings or emotions. One such measure is the State Trait Anxiety Inventory, which assesses in-the-moment anxiety symptoms. Another example of the collection of self-reported emotions is described by Tsanas and colleagues in a 2016 study. The authors introduced a smartphone application called Mood Zoom, which would provide a "real-time" mood report based on time-stamped prompts provided by the application. This allowed the researchers to gather immediate information about the following: anxiety, elation, sadness, irritability, and anger. The collection of feelings and emotions can inform mental health professionals and other clinicians, as well as researchers.

Physiological Recordings

Physiological information is another type of information that can be self-monitored, and is particularly useful for medical purposes (although it has been the focus of many psychological research studies as well). Barton and colleagues (1999) describe the collection and

use of many physiological factors. Some possible examples of the content of physiological self-monitoring include:

- Heart rate, measured by counting one's heartbeats per minute (i.e. someone who wants to maintain a certain heart rate while exercising or someone who suffers from panic disorder who uses their heart rate as a way to assess the onset and termination of a panic attack)
- Blood pressure (i.e. someone with chronic high blood pressure who uses a blood pressure cuff to monitor during the day)
- Sweat (i.e. those who note the presence of sweat to indicate anxiety or stress)
- Temperature (i.e. using a thermometer to track one's temperature during an illness).

The collection of self-monitored physiological information has developed rapidly in complexity and accuracy over time. This is primarily due to the rapid expanse of healthcare technology, and the portable and easily accessible nature of the necessary recording tools. This has various implications for psychological research as well, as many different physiological changes are associated with certain psychological states.

Types of Reports in Self-assessment

Quantitative

Some information gathered using self-assessment is quantitative or numerical. This can include frequencies of thoughts or behaviors, amounts of time, the numerical intensity of a feeling, etc. Advantages of numerical data include the general ease and speed of collection on the part of the individual, and the speed of analysis of numerical data on the part of the researcher or clinician. Numerical information can also be clearly defined for the individual in terms of behavior change interventions (i.e. a therapist setting a goal for an individual to reduce a maladaptive action from a frequency of three times daily to once daily).

Qualitative

In contrast to quantitative or numerical information, qualitative information can be self-monitored and self-reported as well. Examples of qualitative information may include journal entries, in which a person records what they are doing, how they are feeling, etc. at designated intervals over time. It also might involve identifying feelings or thoughts in response to certain events or stimuli. Advantages to qualitative data include the potential for thorough and subjective reports of an individual's experiences.

Advantages and Limitations of Self-monitoring

Advantages

In some situations, self-monitoring is a practical and parsimonious method for either collecting information or producing behavior change. Advantages to this method have been described by Barton and colleagues in 1999, Cohen and Colleagues in 2016, and Peterson

and Tremblay in 1999. One such advantage exists when the desired information cannot be ethically observed or recorded by anyone other than the participant. To elaborate, consider the assessment of a person's late-night eating habits, sexual behaviors, or instances of drinking while alone. In such situations, self-monitoring is instantaneous and around-the-clock, and can therefore serve as a practical observation method in "unobservable" situations. Another advantage of the instantaneousness of self-monitoring is that retrospective reflections or reports are not required; therefore, any errors in remembering can be minimized. An additional benefit is the temporal consistency of self-monitored information, especially with the use of external cues (i.e. the smartphone notification used by Tsanas et al. in 2016). Finally, self-monitoring also limits the effects of the person's reactivity to an observer, therefore minimizing experimenter bias.

Limitations

Alternatively, there are some significant limitations that cause concern when considering self-monitoring as a data collection, assessment, or intervention method. Barton and colleagues in 1999, Peterson and Tremblay in 1999, and Stewart and colleagues in 2000 provide a description of some of these limitations, and describe deficits that might be encountered. When people report their own behavior, with no external observation, there is no complete assurance that the information provided is accurately or honestly reported. For example, if an individual were asked to monitor his or her drinking habits, they could potentially underreport based on shame or fear of judgment. Self-monitoring may therefore produce inaccurate reports, particularly concerning sensitive subject matter. Another limitation is subjectivity of information. If the individual has not been given specific instructions or trained regarding what information to record (and how and when to record it), there could be missing information or skewed data. Also, self-assessment and self-monitoring is a biased report due to the individual's beliefs about themselves, and therefore information might be skewed based on these beliefs. A final potential limitation is internal motivation versus external motivation, and how one might be more effective than the other.

Considerations for Specific Populations

Self-monitoring will have varying levels of consistency and effectiveness depending on the population. Research utilizing self-monitoring methods acknowledges that population differences can affect the integrity of the information gained. For example, those who suffer from antisocial personality disorder might be less motivated to truthfully self-assess than those who do not, so self-monitoring might not be the most effective strategy. Also, as mentioned, when dealing with sensitive information such as drug abuse, criminal behavior, sexual activity, or excessive drinking habits, there is an increased likelihood of falsified or exaggerated reports. This might also affect self-monitoring if the individuals are in denial. Peterson and Tremblay (1999) report that providing inaccurate data can happen with any age group, but children might particularly lack self-awareness of their actions. Further, *any* group which is not adequately motivated might not self-monitor correctly. Burk and

colleagues noted in a 2011 review that men are generally more compliant with self-monitoring than women, so gender differences when self-monitoring should be considered.

Future Considerations

A large influence on the expansion in prevalence and complexity of self-monitoring techniques has been the development of smartphone applications and other electronic personal monitoring tools. A review by Lyons and colleagues in 2014 provides a thorough examination of certain self-monitoring methods using electronic devices. The authors acknowledge that with the ever-increasing number of available smartphone apps, self-monitoring is increasingly easy to do and can require little to no effort. Within seconds, a person can report any sort of information to an application (such as the aforementioned Mood Zoom) in a prepared template that allows them to monitor various aspects of their day. Another popular example of these is fitness monitoring applications such as Fitbit. The user wears a bracelet that synchronizes with an app on their cellphone. At any time, the user can look at their phone and see how many steps they took that day, how many stairs they climbed, their heart rate fluctuations throughout the day, and how many minutes of their day were spent being active, among many other features. Smartphone applications have been developed to assist with everything from breastfeeding ("Baby Nursing") to anxiety ("SAM") to lawn care ("My Lawn"), and everything in between. Empirical research has assessed the effectiveness of many such self-monitoring methods, including a study by Turner-McGrievy and colleagues in 2013 that assessed weight loss applications, a study by Tran and colleagues in 2012 that assessed blood glucose-monitoring applications, and a study by Cohn and colleagues in 2011 that assessed an alcohol use application. This can be advantageous for research as well as for the consumer, as data can be collected reliably and translated easily for study purposes, with a small amount of outside influence or interaction by a researcher or laboratory setting.

See Also

Computer Adaptive Testing (CAT)
Millon Clinical Multiaxial Inventory (MCMI)

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Assessment of Intelligence, General Features and Methodological Issues

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There is perhaps no area in psychology with a longer history, larger corpus of research, and more contention than the assessment of intelligence. Modern intellectual assessment was largely born in the late nineteenth century. Initially, the tests were designed to aid in the teaching of students, and later they were adopted by organizations to aid in personnel selection.

Developers of current intelligence instruments – especially those commercially available for clinical use – often follow best practices in their design. They tend to use large and representative samples, use items that measure their intended constructs well, and produce unbiased scores. Thus, these instruments tend to provide scores that reliably and validly measure the constructs they intend to measure. Nonetheless, there have been some issues that have continually pervaded the assessment of intelligence.

Defining Intelligence

An important aspect in the test development process is being able to define the construct the test intends to measure. However, psychologists have never agreed on a definition of *intelligence* or the components involved in its makeup. This is not for lack of trying, as there have been many books and conferences designed to aid in developing such a definition.

Some have argued that this lack of agreement on a theory and structure of intelligence is the major reason there are so many different intelligence tests. Many current tests are designed to be comprehensive measures that quantify some overlapping components and yield a general factor (*g*; Spearman, 1927) that is somewhat similar across instruments. Other tests are grounded in contradictory perspectives, such as the planning, attention-arousal, simultaneous, and successive (PASS) theory, dynamic assessment, or Triarchic theory.

In 1993, John Carroll published a meta-analysis that examined the relations among multiple measures of different aspects of cognitive ability. In this study, he factor analyzed over 400 datasets and the results led him to develop a three-stratum theory. His theory postulates that intelligence is a multifaceted concept, and that all cognitive tests measure some aspects of intelligence common to other tests. At the first level (Stratum I) are specific abilities (e.g. induction, quantitative reasoning). These abilities are not very abstract and can often be determined by the content of the tests that comprise the factors. At the second level (Stratum II) are factors that are related to a small number of primary or group abilities (e.g. fluid reasoning). At the third level (Stratum III) is a single general factor: *g*.

Carroll's work was monumental on multiple levels, especially for the field of intellectual assessment as it provided an empirical solution for understanding intelligence. His taxonomy provided a common conceptual structure for understanding the construct. Moreover, he provided a nomenclature to describe what the panoply of cognitive tests measure.

Level of Interpretation

Related to the definition issue is the dispute of the level at which intelligence test scores should be interpreted. This debate started in the early twentieth century with those from the "British" tradition arguing that intelligence should be interpreted at the general level, with *g* being the most important aspect. Those from the "American" tradition argued the opposite: interpretation should primarily reside at the specific/group factor level. While the original argument was largely between factor analysts, the issue soon moved into the clinical arena.

The original Binet intelligence tests yielded a single developmental age score for each examinee; thus, there was little debate about what score to interpret. The World War I Army Alpha and Beta tests took a somewhat different approach, as they required examinees to complete multiple homogenous subtests. Nonetheless, interpretation was focused solely on a single score aggregated from the subtests. David Wechsler was strongly influenced by the Army tests, so when he developed the Wechsler–Bellevue Scale, he made the scoring such that both the subtests and the aggregate score were standardized and interpretable, although Wechsler initially only advocated using the global score clinically.

Soon after the Wechsler–Bellevue Scale's publication, some clinicians began arguing for interpreting non-global measures on the test, such as subtest scores and item responses. They believed information from the non-global scores, especially intra-individual comparisons (e.g. differences in item performance and subtest scores), were meaningful to interpret and could enable clinicians to make better diagnostic decisions.

The intra-individual comparisons approach was not universally accepted as Jacob Cohen, among others, argued that most Wechsler subtests did not have enough specificity to warrant their interpretation. Through a series of exploratory factor analyses (e.g. Cohen, 1959), he found that most of the subtests' reliable variances could be explained by *g*, with some group factors explaining most of what was left over. Thus, the amount of reliable variance attributable to what is unique to subtests is too minimal to warrant any clinical use.

The same argument about the level at which to interpret intelligence tests continues today. Some continue to argue that the global scores from intelligence tests are of minor clinical use and should either not be interpreted or should be interpreted in light of any variability in the index or subtests scores. Instead, they argue that it is the pattern of the index scores (or subtests) that allows clinicians to best understand the examinees' cognitive functioning and, subsequently, develop interventions.

In contrast, others argue that factor analysis of modern intelligence tests indicates that the global score should carry the main interpretative weight as it has the most reliable variance. Like Cohen, they contend that the amount of unique variance attributable to index scores or individual subtests is too small to interpret clinically. Moreover, the incremental validity that index or subtest scores add beyond the global score is so minimal that it is not clinically useful.

Clinical Importance

Undoubtedly, intelligence is important to modern life, as it is correlated with a variety of important outcomes and can predict success in many endeavors. Still, the question remains about how clinically important it is to know an individual's intelligence. Specifically, does knowing an individual's intelligence aid in making diagnoses or developing interventions?

Indisputably, measuring intelligence is important when determining if an individual has an intellectual disability or some other cognitive impairment. Its importance in making other diagnoses, however, is typically either irrelevant or questionable.

With interventions, there is evidence that intelligence is important to consider in the overall structure of education. Specifically, individuals with lower levels of *g* require more intensive instruction (e.g. more practice, repetition, examples) than those with higher levels of *g*. Beyond *g* (i.e. Stratum I or II factors), there is much more debate about the clinical usefulness of intelligence. Some argue that it is important to know an individual's profile of scores in order to develop appropriate interventions, while others believe there is little to be gained by developing interventions based on index or subtest scores.

Outside of education, the treatment validity of intelligence is much weaker. Intelligence is related to resilience and long-term effectiveness of psychological interventions. Nonetheless, there appears to be little evidence to support the idea that treatments should differ based on level of intelligence.

See Also

David Wechsler
Jack A. Naglieri
Stanford-Binet Intelligence Scales (SB5)
Wechsler Adult Intelligence Scale-IV (WAIS-IV)
Wechsler Intelligence Scale for Children (WISC)
Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

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Stanford-Binet Intelligence Scale: Fifth Edition

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Overview

The Stanford-Binet Intelligence Scale was created as a modified version of the Binet-Simon Scale of Intelligence (Marom, 2003). The original test was created to evaluate an individual's complex mental abilities (memory, abstraction, judgment, reasoning) in order to assess and diagnose mental retardation. Since the Binet-Simon Scale of Intelligence was published in France translations were later made for use in other countries. However, the English translation proved to be problematic. Lewis M. Termin created the most comparable translation to the original scale, which is still used to this day (Canivez, 2009).

The Stanford-Binet Intelligence Scale – Fifth Edition (SB5) tests the intelligence and/or the cognitive abilities for individuals ranging in age from 2 to 85+ years. There are multiple scores within this intelligence scale, including Full Scale IQ scores, Abbreviated Battery Scores, Verbal IQ Scores, and Nonverbal IQ Scores. Ten subtests are administered during the test, which provides five Factor Index scores that correspond with the five factors examined in this scale. The complete test takes approximately 45 to 75 minutes to administer. However, the Abbreviated Battery takes only 15–20 minutes to administer. The Abbreviated Battery was created to allow for a quick assessment of general intellectual abilities using both non-verbal fluid reasoning and verbal knowledge subtests (Cohen and Swerdlik, 2010).

The SB5 measures five factors of intelligence based on the Cattell-Horn-Carroll (CHC) theory of intellectual abilities. The factors from the SB5 are: Fluid Reasoning (FR), Knowledge (KN), Quantitative Reasoning (QR), Verbal-Spatial Reasoning (VS), and Working Memory (WM). These are measured using varying levels of subtests and tasks. Table 1 provides the description of each factor and the CHC equivalent. This edition of the Stanford-Binet Intelligence Scale has made an effort to eliminate bias by creating subtests that evaluate multiple levels of language ability depending on the amount of vocal direction needed. Some uses of the SB5 include assessment of mental retardation, learning

Table 1   SB5 and CHC Factors

SB5 Factor name	Description	CHC Factor name
Fluid Reasoning (FR)	Novel problem solving; understanding of relationships that are not culturally bound	Fluid Intelligence (Gf)
Knowledge (KN)	Skills and knowledge acquired by formal and informal education	Crystallized Knowledge (Gc)
Quantitative Reasoning (QR)	Knowledge of mathematical thinking including number concepts, estimation, problem solving, and measurement	Quantitative Knowledge (Gq)
Visual-Spatial Reasoning (VS)	Ability to see patterns and relationships and spatial orientation as well as gestalt among diverse visual stimuli	Visual Processing (Gv)
Working Memory (WM)	Cognitive process of temporarily storing and then transforming or sorting information in memory	Short-Term Memory (Gsm)

disabilities, developmental disabilities, and intellectual giftedness. However, in order to diagnose mental retardation the individual needs to also be assessed for serious deficiencies in adaptive behaviors (Cohen and Swerdlik, 2010).

Standardization

The final standardized edition of the SB5 was established after five years of development and analysis to address possible biases, such as racial/ethnic, gender, cultural, and religious discriminations. Roughly 500 examiners from all 50 states were trained in administering this test. There were 4,800 subjects in the average sampling group that ranged from 2 to 85+ years of age. Based on the year 2000 U.S. Census data, the sample was nationally representative of all demographic factors, including age, geographic region, race/ethnicity, and socio-economic level. The original study did not make accommodations for individuals with special needs; however, they were accounted for in further studies. Some individuals were excluded from the original standardized sample if they had severe sensory or communication deficits, limited English proficiency, severe emotional/behaviors disturbances, and/or severe medical conditions (Cohen and Swerdlik, 2010).

Reliability and Validity

An interval consistency reliability formula was used to assess the reliability of the SB5 Full Scale IQ. The results showed that the coefficients for the Full Scale IQ were consistently high (.97 to .98) across all age groups. The Abbreviated Battery IQ scale was also tested and results showed that it was also consistently high (average of .91). Researchers also examined the test-retest reliability of the SB5 and found high reliability. However, the interval was

only 5 to 6 days, whereas other comparable tests were done with a 20–25-day interval. Inter-scorer reliability was also investigated and the results ranged from .74 to .97 with a median of .90. The questions that showed particularly low inter-scorer reliability were removed from the edition of the test (Cohen and Swerdlik, 2010).

The content-related validity for the items in the SB5 was examined in multiple ways, including expert opinion and empirical analysis. The criterion-related validity was tested and evidence was revealed in both predictive and concurrent forms of data. Concurrent studies were compared between the SB5 and Stanford-Binet: Fourth Edition (SB:FE), as well as with all three Wechsler batteries. The correlations between the SB5 and SB:FE were high but, unsurprisingly the correlations with the Wechsler tests were not as high (Cohen and Swerdlik, 2010).

Test Administration

In order for intelligence tests to be sensitive to all individuals, especially children, developers of these tests have tailored them to the test takers. This type of testing is known as adaptive testing. Other names for adaptive testing include response-contingent testing, branched testing, sequential testing, and tailored testing. Adaptive testing might consist of the individual beginning with a moderately difficult question in the subtest. Then based on the response from that question, the individual is either asked an easier or more difficult question next. Computerized adaptive testing is also an option, and is meant to allow for the same type of tailored testing (Cohen and Swerdlik, 2010).

Adaptive testing is designed to guarantee that the initial questions in the test are at the correct difficulty level as to not dismay the individual for the rest of the questions. There are many other advantages of beginning the test with moderate difficulty, including decreasing the chance of the individual becoming frustrated during the test allows the administrator to gather more information in a more time-efficient manner, as well as building rapport with the test taker (Cohen and Swerdlik, 2010).

Once rapport is built between the individual and the administrator an item from a routing test is implemented. A routing test is used to direct the administrator to the certain level of questions. This is used in order to ensure the individual is answering questions at the correct level of difficulty. The two routing tests that are included within the SB5 include the Nonverbal Fluid Reasoning and Verbal Knowledge subtests, which are also the only two subtests used during the Abbreviated Battery IQ test (Cohen and Swerdlik, 2010).

There are three books that contain all of the questions and items from the SB5. The first two routing subtests are contained in book 1. Once the items from book 1 are completed, the administrator decides the appropriate place to start in the rest of the books. Book 2 contains four nonverbal subtests, labeled Knowledge, Visual-Spatial Reasoning, Quantitative Reasoning, and Working Memory. The last book contains four verbal subtests, labeled Fluid Reasoning, Visual-Spatial Processing, Quantitative Reasoning, and Working Memory. Some of the non-verbal and verbal subtests share the same names; nevertheless, they consist of different questions and tasks. For instance, the verbal subtest in Working Memory asks the individual to answer questions in which memory of an entire sentence is recalled verbally. However, the non-verbal subtest for Working Memory consists of the

individual completing tasks that resemble the shell game, in which they are to remember under which cup the shell is placed (Cohen and Swerdlik, 2010).

There are specific instructions included with the SB5 on where to start, reverse, and/or discontinue when administering the test. All examiners are trained in these rules and are required to follow them when conducting the exam. For example, the individual starts at their presumed ability level. Then, if the test taker receives a 0 for the first two questions, the administrator may decide to reverse the direction in which they are asking the questions to test using the correct difficulty level. If the test taker continues to receive scores of 0, the examiner may decide to discontinue testing. There are also guidelines to follow regarding prompting test takers. Specifically, if the individual answers questions vaguely the administrator is allowed to provide the prompt "Tell me more." Furthermore, in order to accommodate all prospective test takers, the majority of the questions on the SB5 are untimed (Cohen and Swerdlik, 2010).

Scoring and Interpretation

There are specific instructions on how to administer, score, and interpret the SB5 included in the test manual, as well as possible correct or incorrect answers for scoring the questions. Subtest scores are established by tallying scores of the individual questions within each subtest. The administrator then takes those raw subtest scores and creates a table to establish them into a standard score. Those standard scores are then used to determine the composite scores (Cohen and Swerdlik, 2010).

When a skilled administrator scores the SB5 more than the Full Scale IQ score and composite scores can be discovered. The test may also reveal some individual strengths and weaknesses about the test taker. Academic and clinical professionals can then use these findings to improve the individual's quality of life. (Cohen and Swerdlik, 2010)

There have been multiple types of analysis used to interpret scores in major cognitive ability tests. The commonality between those methods tends to be the recognition of differences between all scores, as well as the investigation of the factors that analyze the differences between them. In order to identify these important distinctions, the administrator must rely on normative data provided in the test manual as well as statistical calculations. When analyzing the scores the administrator may rely on the SB5 Technical Manual, which contains multiple tables for such help (Cohen and Swerdlik, 2010).

The SB5 not only allows for formal scoring, but it also allows for the administrator to make behavioral observation of the individual. Specifically, the administrator is trained to be aware of the test takers' "extra-test behavior." This may be defined as the way in which an individual copes with test frustration, how they react to seemingly easy tasks, how much support they need throughout, their approach to completing the task, and/or how fatigued, anxious, distractible, co-operative, or compulsive they seem to be. These types of behavioral observations are noted by the administrator using a questionnaire and affect the individual's formal score. Furthermore, the test also provides a space to record the individual's mood, activity level, current medications, physical appearance, and other related factors. Administrators are also encouraged to record any unusual observations during the test, as this may provide insight into further delays or deficits (Cohen and Swerdlik, 2010).

It is custom to convert the Stanford-Binet Full Scale IQ scores into nominal categories for quick reference and to allow for easier understanding for the general public. The categories have had many names throughout the years. However, the following are the SB5's cutoff boundaries and nominal categories:

Measured IQ range	Category
145–160	Very gifted or highly advanced
130–144	Gifted or very advanced
120–129	Superior
110–119	High average
90–109	Average
80–89	Low average
70–79	Borderline impaired or delayed
55–69	Mildly impaired or delayed
40–54	Moderately impaired or delayed

These categories, however, should only be used in reference. In order to prevent discrimination and/or labeling an individual into a "category," administrators and clinicians are encouraged to refer to the individual's abilities and skills in detail when referring to their SB5 test scores (Cohen and Swerdlik, 2010).

See Also

Reliability, Issues of
Validity, Issues of
Wechsler Adult Intelligence Scale-IV (WAIS-IV)

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Wechsler Adult Intelligence Scale-IV (WAIS-IV)

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Introduction

The Wechsler Adult Intelligence Scale – Fourth Edition (WAIS-IV) is a comprehensive clinical instrument for assessing the intellectual abilities of older adolescents and adults. It follows a long tradition of development, testing, and improvement in the testing of mental abilities. Below is a review of the historical context that produced the modern intelligence assessment movement, the development and features of the WAIS-IV, and areas in which it is of most use clinically.

Historical Approach

The assessment of mental abilities began as a movement in the late nineteenth century, spearheaded initially by English statistician Sir Francis Galton (1869, 1883). Specifically, Galton believed intelligence to be a quantifiable construct through measurement of individual sensory and motor functions such as visual acuity, reaction time, and manual grip strength. More contemporary intelligence tests first appeared through the work of Alfred Binet and Theodore Simon, who were commissioned by the French government in 1894 to develop an objective method of distinguishing between normal and intellectually challenged children. Their subsequent 1905 Binet-Simon intelligence scale enjoyed wide use (Binet & Simon, 1905, 1908; Binet, 1911), and was soon thereafter adapted for use in the United States by Stanford professor Lewis Terman (Terman & Childs, 1912; Terman, 1916). His resulting Stanford-Binet scale was normatively based on a representative sample of 1,000 children and adolescents under the age of 14. Terman expanded the mental age categories first used in the Binet-Simon, to include adults based on a frequency distribution of 30 businessmen and 32 high school students.

As the United States entered the World War I in 1917, adult intelligence testing became an important tool in the assessment of draftees. American psychologist Robert Yerkes was charged with the task of developing psychometric tools to assign recruits to various levels of military service, a charge that resulted in the Army Alpha and Army Beta group-based tests. Guided by Binet's conceptualization of mental faculties and Yerkes' advocacy for *point scale* measures (i.e. functions that would not be expected to change significantly with age; Yerkes, 1917), the Army Alpha was intended for individuals with proficiency in reading/writing in English whereas the Army Beta was intended as a non-verbal supplement. The collective efforts of Binet, Simon, Terman, and Yerkes ultimately formed the basis for the modern intelligence test series, developed by Jewish American psychologist David Wechsler. Using the clinical skills and statistical training acquired as a mentee of statistician Charles Spearman and as a World War I psychology examiner, Wechsler constructed a series of intelligence tests that would overtake all others to become the most popular and widely used measures for decades to come.

Modern Approach

David Wechsler's motivation in constructing his intelligence scale differed from that of his predecessors. Whereas others valued intelligence tests for their utility in identifying the "feeble-minded" or predicting academic or occupational achievement, for Wechsler, an intelligence scale was a clinical instrument that would peer into the inner workings of the mind. Although he understood it as a global construct, Wechsler believed intelligence to include multiple, specific, and interrelated elements that could be individually measured. Even beyond World War I, Wechsler saw value in the continued development and refinement of intelligence tests appropriate for assessing adults and older adolescents.

Wechsler's conceptualization of intelligence was reflected in his first intelligence scale, the Wechsler-Bellevue Intelligence Scale (Wechsler, 1939). Published by the Psychological Corporation, the Wechsler-Bellevue provided a global composite intellectual score. It also provided verbal and non-verbal intellectual scores based on individual performance across 11 subtests adapted from the Stanford-Binet and Army series tests (i.e. Information, Comprehension, Arithmetic, Similarities, Digit Span, Vocabulary, Digit Symbol, Picture Completion, Block Design, Picture Arrangement, and Object Assembly). Importantly, Wechsler acknowledged that this verbal/non-verbal dichotomy was but one of many potential means in which intellectual domains could be feasibly organized. Nonetheless, the Wechsler-Bellevue was considered innovative due to its use of calculated standard scores based on deviation quotients derived from one's performance relative to a population-based average. This approach represented a significant point of departure and psychometric improvement upon Terman's calculation of IQ by dividing mental age by chronological age.

Released in 1955, the first Wechsler Adult Intelligence Scale (WAIS) represented a significant revision of the original Wechsler-Bellevue. It now specified Full Scale IQ, Verbal IQ, and Performance IQ indexes. Perhaps most importantly, the WAIS derived norms from a nationally stratified sample based on U.S. Census Bureau data, which was an improvement over its predecessor's small and geographically limited standardization sample.

Subsequent revisions were released in 1981 (Wechsler Adult Intelligence Scale-Revised; WAIS-R) and 1997 (Wechsler Adult Intelligence Scale-Third Edition; WAIS-III), which included revisions to test instructions, scoring rules, and the subtests themselves. Normative data were also more carefully stratified. New index scores were released, representing fluid-intellectual domains of working memory and processing speed. However, the most ambitious revision of the WAIS was still to come.

Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV)

The Wechsler Adult Intelligence Scale-Fourth Edition (WAIS-IV; Wechsler, 2008) was released in 2008. Together, the 10 core subtests of the four index scales constitute the WAIS-IV Full Scale. Full Scale performance can be summarized using a composite score, the Full Scale IQ, as a measure of overall cognitive ability (FSIQ; Wechsler, 2008). FSIQ is composed of four indexes: the Verbal Comprehension Index, the Perceptual Reasoning Index, the Working Memory Index, and the Processing Speed Index (standard scores: mean=100, standard deviation=15) that are all based on a number of core and supplemental subtests (scaled scores: mean=15, standard deviation=3) that provide pertinent clinical information and flexibility in implementation. This WAIS revision offered multiple benefits over its predecessors, including revised instructions and improved floor/ceiling scores for reduced testing time, redesigned record forms for ease of use, subtest changes to reduce burden on motor demands, enlarged visual stimuli, and increased portability (Wechsler, 2008).

Primary and Supplementary Indexes

The WAIS-IV Verbal Comprehension Index (VCI; Wechsler, 2008) includes subtests that measure verbal abilities including expression of lexical and semantic knowledge, concept formation, abstract reasoning, and problem solving. WAIS-IV VCI is composed of three core subtests: *Similarities* (i.e. concept formation and abstract reasoning for pairs of related words), *Vocabulary* (i.e. lexical knowledge and expressive vocabulary), and *Information* (i.e. degree of general semantic knowledge). There is also one supplemental subtest that is optional in the WAIS-IV administration, *Comprehension* (i.e. practical knowledge and judgment using knowledge of abstract social conventions and rules).

The Perceptual Reasoning Index (PRI; Wechsler, 2008) includes subtests that measure non-verbal perception, organization, manipulation, and reasoning. WAIS-IV PRI is composed of three core subtests: *Block Design* (i.e. three-dimensional praxis, problem solving), *Matrix Reasoning* (i.e. pattern recognition, non-verbal abstract problem solving, inductive spatial reasoning), and *Visual Puzzles* (i.e. spatial rotation, reasoning, and non-verbal abstract problem solving). There are two supplemental subtests, including *Figure Weights* (i.e. quantitative and analogical reasoning) and *Picture Completion* (i.e. visual perception, recognition, organization).

The Working Memory Index (WMI; Wechsler, 2008) is composed of subtests that assess simultaneous and sequential processing, attention, and concentration. WAIS-IV WMI includes two core subtests: *Digit Span* (i.e. auditory processing, attention/concentration,

mental manipulation) and *Arithmetic* (i.e. attention/concentration, mental calculation, numerical reasoning). It also includes one supplemental subtest, *Letter-Number Sequencing* (i.e. sequential processing, mental manipulation, attention/concentration). The Processing Speed Index (PSI; Wechsler, 2008) includes subtests the measure the speed of mental and graphomotor processing. WAIS-IV PSI includes two core subtests: *Symbol Search* (i.e. visuoperceptual speed, visuomotor coordination, visual scanning, visual working memory, decision-making) and *Coding* (i.e. visuoperceptual speed, visuomotor coordination, visual working memory). There is also one supplemental subtest, *Cancellation* (i.e. visuoperceptual speed).

One concern regarding the WAIS has been the role of neuropsychological deficits in the reliability and validity of index scores, as neurologically compromised populations are more likely to display fluid impairments which may mask differences between general cognitive ability and other functions. To address this concern, the WAIS-IV included two optional composite scores. The first score serves to summarize general intellectual ability by eliminating working memory and processing speed performances from consideration (i.e. General Ability Index or GAI; Wechsler, 2008). Conversely, test users also have the option of a composite score that allows the user to distinguish fluid-intellectual from crystallized-intellectual abilities (i.e. Cognitive Proficiency Index or CPI; Wechsler, 2008).

Psychometric Properties

The WAIS-IV was standardized using a national sample representative of the U.S. English-speaking population aged 16 years 0 months to 90 years 11 months. Data were collected from March 2007 to April 2008. Stratified sampling was utilized to ensure representation of selected demographic variables based on U.S. Census Bureau data from 2005. Demographic variables of interest included age, sex, race/ethnicity, education level, parent education level, and geographic location. Amongst those excluded were individuals with physical or psychiatric conditions that might affect performance (e.g. traumatic brain injury, dementia, mood disorder, substance abuse/dependence) and individuals currently taking medication that might impact performance (e.g. anticonvulsants, antipsychotics).

The WAIS-IV normative sample was divided into 13 age groups: 16:0–17:11, 18:0–19:11, 20:0–24:11, 25:0–29:11, 30:00–34:11, 35:0–44:11, 45:0–54:11, 55:0–64:11, 65:0–69:11, 70:0–74:11, 75:0–79:11, 80:0–84:11, 85:0–90:11. The nine younger age groups contained 200 participants each, while the four older age groups contained 100 participants each. An equal number of males and females were contained in each age group, with the exception of the five older age groups, which each contained more women than men. The proportion of Whites, African Americans, Hispanics, Asians, and other racial groups in each age group reflected the U.S. population. Five education levels were defined: <=8 years, 9–11 years, 12 years, 13–15 years, and >= 16 years. Parent education was used for examinees aged 16 to 19. The four major geographic regions of the U.S. (i.e. Northeast, Midwest, South, West) were represented.

WAIS-IV reliability properties are reviewed within the user manual (Wechsler, 2008). Split-half reliability is generally strong for both FSIQ (i.e. ranging from .97 to .98 across the

13 normative age groups) and primary indexes (i.e. VCI = .96, PRI= .95, WMI=.94, PSI=.90), and ranges from adequate to strong across core and supplemental subtests (i.e. overall core subtest median of .89; overall supplemental subtest median of .87). Test-retest coefficients are also strong for the FSIQ (i.e. r=.96 across test-retest intervals ranging from 8 to 82 days) and primary indexes (i.e. VCI= .96, PRI=.87, WMI=.88, PSI=.87), and for subtests range from as high as .90 (Information) to .74 (Matrix Reasoning). Inter-rater reliability coefficients are similarly strong, ranging from .98 to .99 across all subtests – even in subtests with greater inherent subjectivity in scoring (i.e. Similarities=.93, Information=.97, Vocabulary=.95, and Comprehension=.91).

WAIS-IV validity properties are likewise reviewed within the user manual (Wechsler, 2008). Multiple confirmatory factor analysis studies support the four-factor structure of the WAIS-IV. Construct, structural, and incremental validity have been established for the primary indexes though subtest validity is less strong (Nelson, Canivez, & Watkins, 2013; Wechsler, 2008). Evidence of convergent and discriminant validity for the WAIS-IV has also been established via correlational studies with the WAIS-III, Wechsler Intelligence Scale for Children-Fourth Edition (WISC-IV), Wechsler Memory Scale-III (WMS-III), Children's Memory Scale (CMS), Wechsler Individual Achievement Test-II (WIAT-II), Brown Attention-Deficit Disorder Scales (Brown ADD), Delis-Kaplan Executive Function System (D-KEFS), California Verbal Learning Test-Second Edition (CVLT-II), and Repeatable Battery for the Assessment of Neuropsychological Status (RBANS) across clinical populations.

Clinical Indications and Considerations

The WAIS-IV plays a central role in clinical practice. It has broad applicability to individuals aged 16–90 years, with a great deal of research describing patterns of cognitive performance across demographic, developmental, injury, and disease-related variables; normative data can be obtained for many clinical populations including those with intellectual disabilities, learning disorders, acquired brain injury, psychiatric disturbance, and neurodegenerative illness. Both normative and item-response data can also be utilized in the characterization of test performance and disambiguation of clinical diagnoses.

In 2009, Advanced Clinical Solutions (ACS; Pearson, 2009a, 2009b) was released as a supplement to the WAIS-IV and WMS-IV. ACS includes an assortment of additional scores, indexes, norms, and subtests that enhance and expand normative comparisons, assess functional status and social cognition, and detect suboptimal effort. The ACS Test of Premorbid Functioning (TOPF) is an additional valuable subtest that provides estimation of an individual's premorbid cognitive functioning, allowing for comparison with current functioning.

While WAIS-IV and ACS provide a wealth of information in and of themselves, clinicians should keep in mind that performance should always be interpreted in light of important contextual factors such as medical history, psychiatric history, psychosocial history, education, behavioral observations, previous testing performance, and the purpose of the evaluation. The complexity of the data obtained necessitates comprehensive training at the level of neuropsychologists, clinical psychologists, and school psychologists. One critical

consideration to the interpretation of WAIS-IV data is level of task engagement and effort (Boone, 2008). This determination should always be made on the basis of multiple sources of information and informed by objective measures of performance. WAIS-IV and ACS together include multiple embedded measures of performance validity (i.e. Reliable Digit Span, Word Choice subtest) that users can consider in light of base rates for normal, feigned impairment, and clinical populations.

Use of the WAIS-IV also requires clinicians to manage the test and the data obtained in an ethical manner. Clinicians should not base their assessment, interpretation, or recommendations on data that are outdated or inconsistent with the purpose of the measure. For example, using the most updated version of WAIS-IV with appropriate normative adjustments is critical for accurate and responsible assessment. Populations show gains in intelligence testing performance over time and, as such, intelligence tests must be standardized periodically to maintain accuracy (i.e. Flynn Effect; Flynn, 1987). On average, fluid intelligence testing performance increases by one standard deviation per generation, while performance on crystallized intelligence measures increases by less than a standard deviation. Increases have also been reported across other cognitive domains including semantic and episodic memory. It remains unclear what is driving the Flynn Effect, though some have hypothesized that literacy, testing familiarity, health, and environmental complexity could be contributing factors.

While our review relates only to the WAIS-IV and its contributions to intellectual assessment, we feel it important to note that development of the next revision is already well underway. Data collection for the WAIS-5 began in spring 2016 and is expected to end in spring 2020. Anticipated benefits include extensive updates to the normative sample, and opportunity for users to choose administration in either paper or digital formats. Until then, however, the WAIS-IV reigns as the most widely used intelligence assessment.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Culture Free/Fair Intelligence Test
Cultural Intelligence
David Wechsler
Emotional Intelligence
Emotional Intelligence in the Workplace
Mental Competency, Assessment of
Personality and Intelligence in Employee Selection
Stanford-Binet Intelligence Scales (SB5)
Turhan Canli
Wechsler Intelligence Scale for Children (WISC)
Wechsler Memory Scales (WMS-III)
Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

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Wechsler Intelligence Scale for Children (WISC)

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The Wechsler scales have long history in the assessment of cognitive ability. The children's version of the scale, the Wechsler Intelligence Scale for Children (WISC), was published in 1949 as a downward extension of the Wechsler-Bellevue Form II. Since its original publication, it has undergone four revisions. The most recent edition is the fifth, which was published in 2014. Like its predecessors, the fifth edition of the WISC (WISC-V) is an individually administered, norm-referenced instrument, designed to assess both general and discrete domains of intelligence. Unlike previous editions, the WISC-V is available in traditional format as well as in the test publisher's *Q-interactive* format, which uses an iPad for administration.

Standardization

The normative sample for the WISC-V included 2,200 children between the ages of 6 to 16 years, with 100 males and 100 females at each of the 11 age levels. The sample was stratified according to the 2012 U.S. census to achieve proportional representation across age, sex, race/ethnicity, parent-education level, and geographic region. Additionally, the sample was selected to have a representative proportion of children with certain special education diagnoses (i.e. developmental delay, intellectual disability, specific learning disability, speech/language impairment, attention-deficit/hyperactivity disorder, gifted/talented).

Organization

The WISC-V has 21 subtests that assess intelligence in general, five of the most common specific intelligence domains (Verbal Comprehension, Visual Spatial, Fluid Reasoning, Working Memory, and Processing Speed), and some cognitive skills related to learning. The WISC-V authors removed two subtests from the previous edition (Word Reasoning and

Picture Completion), added three new intelligence subtests (Visual Puzzles, Figure Weights, and Picture Span) and five subtests measuring learning, and revised or created new items for all the remaining subtests. The WISC-V subtests are given in Table 1.

The subtests are classified using a three-level system. There are 10 primary subtests, six secondary subtests, and five complementary subtests. The primary subtests are those required for a comprehensive evaluation of intellectual ability. The secondary subtests supplement the primary subtests by measuring a broader sampling of intellectual functioning and provide additional information for clinical decision making. The complementary subtests were not designed to measure intelligence, *per se*; instead, they were designed to measure a variety of cognitive processes related to academic learning.

The raw scores from the subtests can be converted to age-based standard or scaled scores. In addition, a *processing score* can be calculated for most of the subtests. These scores are designed to provide more detailed information about the cognitive processes that contribute to an individual's performance on the subtests than raw or age-corrected scores.

There are 14 composite/index scores on the WISC-V, which are classified using a four-level system. There is only one score at the *Full Scale* level: the Full Scale IQ (FSIQ), which is designed to capture intelligence in general. It is composed of seven subtests. The five scores at the *Primary Index Scale* level were derived from factor analysis and are designed to measure the five common specific intelligence domains. At the *Ancillary Index* level, there are five scores that reflect various theoretical combinations of primary and secondary subtests. The *Complementary Index* level is composed of three scales derived solely from the complementary subtests.

Interpretation

The WISC-V authors' suggested interpretation of the test's scores is much more complex than previous editions. At the initial stage, they recommend interpreting norm-referenced scores for the FSIQ and other index scores, such as standard scores, percentile ranks, confidence intervals, and qualitative descriptors.

The remaining interpretation stages all involve intra-individual comparisons of subtest, index, or process scores. Although the WISC-V authors provided base rate information for the score differences, significance of these differences is determined using null hypothesis testing under the assumption that all scores for a given individual should be the same. There are two types of score comparisons, both of which are done to determine if an individual has any intra-individual cognitive strengths or weaknesses: comparing a score to either the mean of multiple scores or an index score (i.e. mean comparison), or directly comparing two scores (i.e. pairwise comparison).

Reliability

The WISC-V authors provided three types of reliability estimates: internal consistency (i.e. split-half correlations), inter-scorer agreement (i.e. comparing scores from two independent scorers of the same protocol), and stability (i.e. test-retest). Internal consistency

Table 1 Wechsler Intelligence Scale for Children-Fifth Edition Subtest Scores and Classifications

Subtest	Subtest Classification	Cognitive Domain	Full Scale	Primary	Ancillary	Complementary
Similarities	Primary	Verbal Comprehension	FSIQ	Verbal Comprehension	General Ability	
Vocabulary	Primary	Verbal Comprehension	FSIQ	Verbal Comprehension	General Ability	
Information	Secondary	Verbal Comprehension		Verbal Comprehension		
Comprehension	Secondary	Verbal Comprehension		Verbal Comprehension		
Block Design	Primary	Visual Spatial	FSIQ	Visual Spatial	Nonverbal; General Ability	
Visual Puzzles	Secondary	Visual Spatial		Visual Spatial	Nonverbal	
Matrix Reasoning	Primary	Fluid Reasoning	FSIQ	Fluid Reasoning	Nonverbal; General Ability	
Figure Weights	Primary	Fluid Reasoning	FSIQ	Fluid Reasoning	Quantitative Reasoning; Nonverbal; General Ability	
Picture Concepts	Secondary	Fluid Reasoning		Fluid Reasoning		
Arithmetic	Secondary	Fluid Reasoning		Fluid Reasoning	Quantitative Reasoning	
Digit Span	Primary	Working Memory	FSIQ	Working Memory	Auditory Working Memory; Cognitive Proficiency	
Picture Span	Secondary	Working Memory		Working Memory	Nonverbal; Cognitive Proficiency	
Letter-Number Sequencing	Secondary	Working Memory		Working Memory	Auditory Working Memory	
Coding	Primary	Processing Speed	FSIQ	Processing Speed	Nonverbal; Cognitive Proficiency	
Symbol Search	Secondary	Processing Speed		Processing Speed	Cognitive Proficiency	

(*Continued*)

Table 1 (Continued)

Subtest	Subtest Classification	Cognitive Domain	Full Scale	Primary	Ancillary	Complementary
				Index Scores		
Cancellation	Secondary	Processing Speed		Processing Speed		
Naming Speed Literacy	Complementary	Learning				Naming Speed; Storage and Retrieval
Naming Speed Quantity	Complementary	Learning				Naming Speed; Storage and Retrieval
Immediate Symbol Translation	Complementary	Learning				Symbol Translation; Storage and Retrieval
Delayed Symbol Translation	Complementary	Learning				Symbol Translation; Storage and Retrieval
Recognition Symbol Translation	Complementary	Learning				Symbol Translation; Storage and Retrieval

estimates were estimated for all subtests except for those that have a speed element. For speeded tests, reliability was estimated using test-retest. Subtest and process score reliability estimates ranged from .80–.94 across all age groups; index score reliabilities ranged from .88–.96, with the FSIQ having the highest reliability. Inter-scorer agreement values ranged from .97–.99 for the 60 respondents for whom these values were calculated.

Stability estimates were calculated for 218 children with retest intervals ranging from nine to 82 days days. Uncorrected coefficients ranged from .63–.89 for the subtest and process scores, and ranged from .68–.91 for the index scores. Of note, the WISC-V authors did not report stability estimates of any inter-individual comparison scores.

Validity

The WISC-V authors provided validity evidence consistent with what was suggested in the third edition of the *Standards for Educational and Psychological Testing* (American Educational Research Association, American Psychological Association, & National Council on Measurement in Education, 1999). For content validity evidence, they reviewed the literature on the domains the WISC-V measure, hired expert consultants, examined item content, and directly questioned children about their understanding of items in some subtests.

For construct validity evidence, the WISC-V authors reported conducting a series of confirmatory factor analyses (CFA) as well as examining zero-order correlations of subtest, process, and index scores (i.e. multitrait-multimethod). For both methods, they reported finding evidence that the subtests measured their intended constructs.

For criterion validity evidence, the WISC-V authors reported two types of evidence. First, they reported correlations between scores on the WISC-V and scores from other instruments for non-clinical subsamples of the norming group. They gathered data on measures of intelligence (four instruments), academic achievement (two instruments), adaptive behavior (one instrument), and child behavior (one instrument, parent report from an omnibus rating scale measuring: resiliency, conduct problems, executive functioning, and attention problems). The correlations with other intelligence measures were moderate to high for similar composite scores, with the highest correlations coming from the FSIQ (range: .77–.84). Likewise, comparisons between the academic achievement composite scores and the WISC-V FSIQ were generally higher than those from other WISC-V scores (range: .49 –.81). Most of the correlations between the WISC-V scores and measures on both the adaptive behavior and child behavior scales were low. They interpreted this as indicating the WISC-V scores had divergent validity because the WISC-V was not designed to measure adaptive behavior or general child behavior.

The second type of criterion validity evidence reported is mean differences in WISC-V scores between convenience samples of "special groups" of children (i.e. gifted, intellectual disability, borderline intellectual functioning, specific learning disorder, attention-deficit/hyperactivity disorder, disruptive behavior disorder, traumatic brain injury, and English-language learner) and matched individuals in the norming sample. The mean differences were generally in the areas thought to be affected by the nature of the special groups' diagnosis. The WISC-V authors concluded that these differences provide strong support for the validity and clinical utility of the WISC-V.

Critique

Since the WISC-V was published recently, there have been very few third-party publications empirically examining the scores or reviewing the instrument. Canivez and Watkins (2016) likely provided the most thorough critique of the instrument to date. Not only did they review all the WISC-V materials and manuals, but they also re-analyzed the summary data therein.

They commended the WISC-V authors for using a large, demographically representative standardization sample, taking many steps to make the administration better than in previous editions, and adding two measures of Fluid Reasoning – an area that was not measured well in previous editions. Moreover, they praised the WISC-V authors for providing many correlation matrices and descriptive statistics so that independent researchers can study various aspects of the WISC-V.

Canivez and Watkins' (2016) criticisms of the WISC-V are manifold, but some of their most cogent ones are:

- *Selective literature review.* The technical manual does not discuss any of the problems involved with inter-individual score comparisons. This selective reporting is particularly troubling given the corpus of literature in this area.
- *CFA methods.* The CFA methods reported in the technical manual are not very transparent. First, the authors did not fully describe their model specification, so Canivez and Watkins could not reproduce the technical manual's results. Second, the authors selectively interpreted the CFA fit measures to highlight their preferred model (i.e. one general factor and five group/specific factors). This selective interpretation could have resulted in selecting an over-factored model.
- *Lack of exploratory methods.* The authors did not report conducting any exploratory factor analyses despite the addition of new subtests, deletion of old subtests, and the revision of item in most subtests.
- *No evidence supporting reliability of non-general scores.* Given the WISC-V authors' emphasis on interpreting scores other than the FSIQ, they should have provided estimates of how much subtest variance is due to a general factor versus that due to the specific group factors. In Canivez and Watkins' reanalysis of the WISC-V summary data, they found that a general factor accounted for 35% of the subtests' total variance and 68% of the common variance. The group factors accounted for very little variance beyond the general factor. The Verbal Comprehension factor accounted for the most non-general variance, but even it was minimal: an additional 4% of the subtests' total variance and an additional 7% of the common variance. Thus, Canivez and Watkins questioned the wisdom of interpreting any score on the WISC-V except the FSIQ.

See Also

Assessment of Intelligence, General Features and Methodological Issues
David Wechsler

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Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

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The Wechsler Preschool and Primary Scales of Intelligence (WPPSI) is a scale designed by psychologist David Wechsler, with the purpose of measuring children's intelligence at ages 2 years and 6 months to 7 years and 7 months. Wechsler has created many intelligence scales for different age groups, all of which have the same general structure and are meant to estimate dimensions of intelligence, along with overall intelligence. This scale has been adapted for use in countries around the world and, for English-speaking populations, is one of the most widely used scales to measure intellectual functioning. The reason it is so widely used is because this scale shows intelligence scores at multiple levels, including the primary factor-based composite index scores and the theoretically based ancillary index scores. Based on the scores for the subscales of intelligence and the composite score, clinicians are able to use it as a comprehensive neuropsychological assessment of cognitive and adaptive functioning in children (Thorndike, 2014). The most recent version of this intelligence scale is the Wechsler Preschool and Primary Scale of Intelligence-Fourth Edition (WPPSI-IV). The scale underwent some changes in order for updates to be made and concerns to be addressed. These changes included four subtests being removed, five being added, and modifications being made to the content, administration, and scoring. This was done in order to decrease redundancy, include measures for working memory and processing speed, and to create more engaging, child-friendly material (Canivez, 2014).

WPPSI-IV Mechanics

Even though the WPPSI-IV is used on children ages 2 years and 6 months to 7 years and 7 months, within this age bracket there are two separate age bands: (1) 2 years and 6 months to 3 years and 11 months and (2) 4 years to 7 years and 7 months. The scale uses different subsets for these two age bands because of the differences in development and cognition (Canivez, 2014). With the switch from the third edition to the fourth, four subtests were

removed, five were added, and modifications were made to the content, administration, and scoring. With these changes, the scale includes 15 subtests for each age band, but the subtests vary in content between the two age bands. The five subtests that were added were put in place to measure working memory and processing speed. The working memory subtests now use proactive interference and the processing speed subtests are now more game-like so that the children are easily engaged. For example, some child-friendly subtests that were added include Zoo Locations, Bug Search, and Animal Coding. An ink dauber is provided for children taking the test to mark answers so that they can do so quickly.

WPPSI-IV Scoring

Scores for the WPPSI-IV can be interpreted at three different levels. These levels include full scale, index scale, and individual subtests. Multiple subtest scores are combined to make up the primary, factor-based composite, index scores (Thorndike, 2014). These index scores represent intellectual functioning and cognitive ability. There are also ancillary index scores, which are supplemental and allow for broader sampling. The Full Scale IQ for the 2 years and 6 months to 3 years and 11 months age band consists of the Verbal Comprehension Index, Visual Spatial Index, and Working Memory Index. The primary index scales include the Verbal Comprehension Index, Visual Spatial Index, and the Working Memory Index. The Ancillary Index scales include the Vocabulary Acquisition Index, Nonverbal Index, and the General Ability Index. The Full Scale IQ for the 4 years to 7 years and 7 months age band includes the Verbal Comprehension Index, Visual Spatial Index, Fluid Reasoning Index, Working Memory Index, and the Processing Speed Index. The primary index scales consist of the Verbal Comprehension Index, Visual Spatial Index, Fluid Reasoning Index, Working Memory Index, and the Processing Speed Index. The Ancillary Index scales include the Vocabulary Acquisition Index, Nonverbal Index, General Ability Index, and the Cognitive Proficiency Index. Each index includes certain subtests. For example, the Cognitive Proficiency Index consists of the Picture Memory, Zoo Locations, Bug Search, Cancelation, and Animal Coding subtests. The Full Scale IQ score is always administered first.

Limitations and Current Usage

Although many changes were made when updating the Wechsler Preschool and Primary Scales of Intelligence from the third edition to the fourth edition, some limitations remain. The WPPSI-IV is in need of strong empirical evidence before being able to apply its results to individuals (Canivez, 2014). Also, the WPPSI-IV Technical and Interpretive Manual should have included more statistical analyses and results so that the full account of its accuracy could be evaluated. Because of this, clinicians must wait for new studies to emerge before judging whether the WPPSI-IV should be used or not.

See Also

Assessment of Intelligence, General Features and Methodological Issues
David Wechsler
Wechsler Adult Intelligence Scale-IV (WAIS-IV)
Wechsler Intelligence Scale for Children (WISC)
Wechsler Memory Scales (WMS-III)

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Intelligence-Personality Association, Assessment of

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Intelligence and personality are two of the main constructs examined in individual differences research (Chamorro-Premuzic & Furnham, 2006). Intelligence, in particular, has held a prominent stance in behavioral science research, with individual differences researchers largely in agreement on both the psychometric properties of intelligence and methods of measurement (von Stumm, Chamorro-Premuzic, & Ackerman, 2011). There is less agreement regarding personality, with researchers continuing to determine its properties. Additionally, the main method of capturing personality data is via self-report measures, which access only explicit personality (known by the subject) and neglect implicit personality. The current understanding of the association between intelligence and personality is even less clear. Currently, no standardized assessment battery is in use that has the sole intention of singlehandedly capturing intelligence-personality associations. Rather, separate assessment measures are used to record intelligence and personality data independently, and statistical tests are then utilized to determine their relationships.

The assessment of intelligence-personality associations is shaped by a study's demands and intentions. Although intelligence and personality share many similarities that should assist in understanding their relationship to each other, such as showing temporal stability and having genetic components (von Stumm et al., 2011), it is their differences that tend to complicate the understanding of how the two constructs are related. There are currently only three theoretical perspectives on intelligence-personality associations present in the individual differences literature (von Stumm et al., 2011). As a result, the assessment of intelligence-personality association remains largely experimental.

The first theory of intelligence-personality associations, originally developed by Edward Webb in 1915, posits that intelligence and personality are independent of one another (Webb, 1915, as cited by von Stumm et al., 2011). Historically, research has generally found low correlations between intelligence and personality, as well as their conceptual features (von Stumm et al., 2011). This track record has slowed down the drive for research on intelligence-personality associations in the past. More recently, however, researchers have

argued for continuing to examine their association, stating that the correlations between intelligence and personality are modest, indicating the presence of *some* relationship, and that studying these constructs in relation to each other may serve to increase the understanding of both (von Stumm et al., 2011). For example, measures of intelligence have frequently been shown to predict academic achievement; however, this has not been the case for personality measures (Chamorro-Premuzic & Furnham, 2006). This lack of prediction of academic ability from personality measures may be linked to the demands of the educational setting (von Stumm et al., 2011). When demands are basic at lower educational levels, personality does not appear to play as great a role. When the demands are greater, such as in postsecondary educational settings, personality has a larger impact in determining educational qualification, persistence, and work performance and attendance.

A second theory of intelligence-personality associations, presented by Furnham, Forde, and Cotter in 1998, posits that there are relationships present at the measurement level (von Stumm et al., 2011). These associations specifically address the impact of personality on intelligence test performance, not ability, indicating that personality affects the measurement of intelligence. The traits of extraversion and neuroticism have played a central role in these particular associations.

As originally discussed by Eysenck, extraversion and introversion have been found to have a connection to cortical arousal and arousability, wherein extraverts have comparatively lower levels of both and introverts have higher levels (Eysenck, 1957, as cited by von Stumm et al., 2011). When considered within the parameters of the Yerkes-Dodson law, which states that moderate levels of arousal lead to greater performance than either high or low levels, these differences in arousability may have a role in intelligence test performance (von Stumm et al., 2011). Research on this topic has yielded inconclusive findings. For instance, it has been shown that introverts perform better in silence than either extraverts or ambiverts, whereas extraverts do better with auditory stimulation (Bates & Rock, 2004). However, other researchers have failed to find similar results, leading some to propose that there are moderating variables in the relationship between intelligence and extraversion, such as the measures used (Wolf & Ackerman, 2005).

Neuroticism and intelligence have consistently been shown to be negatively correlated (von Stumm et al., 2011). Scholars have posited that this relationship is due to the negative impact of the primary facets of neuroticism, such as anxiety and frustration, on the test performance of individuals high in neuroticism (Furnham et al., 1998). Consequently, the components of neuroticism may influence a test-taker's ability to focus. Research has supported this assertion, finding that test anxiety is positively related to both state and trait anxiety, as well as decreases in performance on intelligence tests (Hembree, 1988). Further research has determined that test anxiety relates to the latent trait of general ability (Reeve & Bonaccio, 2008).

The third theory of intelligence-personality associations consists of a developmental relationship between intelligence and personality, which states that personality traits influence individuals' specific applications of their intelligence (Chamorro-Premuzic & Furnham, 2006). These conceptual associations have been considered within the frameworks of three theories: (1) investment, a model concerned with diminishing returns and age-related performance, which was initiated by Cattell in the 1940s and more fully

developed by Ackerman in 1996; (2) compensation, a model developed in 2005 by Chamorro-Premuzic and Furnham that examines how personality and related traits may be used to offset differences in intelligence; and (3) differentiation, a model based on Spearman's 1927 law of diminishing returns in which intellectual development splits off from cognitive abilities (Ackerman, 1996, Cattell, 1943, Spearman, 1927, as cited by von Stumm et al., 2011; Chamorro-Premuzic & Furnham, 2005).

Investment theory has its roots in Cattell's proposal of intelligence as having both a fluid nature and a crystallized counterpart in that there are individual differences in the tendencies to partake in activities that encourage learning, including age and return expectation (von Stumm et al., 2011). Expanding upon this, investment traits influence seeking out and engaging in cognitive activity (von Stumm, 2010). The personality construct openness to experience has been hypothesized as being such a trait, and research has confirmed a significant relationship between openness to experience and intelligence (von Stumm et al., 2011).

Compensation focuses on the trait of conscientiousness. Although intelligence and conscientiousness have been shown to be independent of one another, some studies have found small negative correlations (von Stumm et al., 2011). Researchers have suggested that conscientiousness may serve as a compensatory mechanism for those with lower levels of intelligence but may not be needed to the same degree by those with higher levels. Although preliminary research has found support for this relationship between conscientiousness and intelligence (Postlethwaite, Robins, Rickerson, & McKinniss, 2009), there is a current need for it to be explored within various settings (von Stumm et al., 2011).

Differentiation is a model based on Spearman's law of diminishing returns (von Stumm et al., 2011). This law states that the higher an individual's level of *g*, the smaller the variance in ability test scores that can be ascribed to *g*. Building off this idea, Garrett (1946) proposed that general ability transforms into separate aptitudes as one ages, which is known as age differentiation (see von Stumm et al., 2011). Personality differentiation has focused on the study of neuroticism, with Eysenck and White hypothesizing that, as neuroticism increases, intelligence differentiation decreases (Eysenck & White, 1964, as cited by von Stumm et al., 2011). Results for this suggestion have been inconsistent, and further research examining both neuroticism and other personality traits is warranted (von Stumm et al., 2011). The study of personality on intelligence differentiation stems from the theory that, as *g* increases, so do the person's separate personality facets. Higher levels of *g* promote the development of more, or more differentiated, personality factors. However, there have been few previous efforts to research intelligence differentiation, and available studies have yielded inconsistent findings.

Although research has recently called for different ways of testing and identifying the relation between intelligence and personality, the tools used for measuring intelligence-personality associations have generally remained the same. Personality has been captured by measures such as the NEO Personality Inventory and the Minnesota Multiphasic Personality Inventory. However, recent research has suggested that there may be a general factor of personality, similar to the concept of *g* intelligence, which may have the potential to provide a more unified representation of personality and assist in comparisons to general intelligence (Dunkel, 2013). Intelligence has been measured by tests including the

California Achievement Test Battery, Raven's Progressive Matrices, and the General Ability Test Battery. Intelligence has also been separated into crystallized, fluid, visuospatial, and other subgroups, and specific tests capturing these different types have been utilized. There is no single test developed to measure intelligence-personality associations, and current practice for measuring intelligence-personality associations continues to be by measuring the two constructs separately.

See Also

Assessment of Intelligence, General Features and Methodological Issues

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Abilities, General Features and Methodological Issues

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What are Cognitive Processes?

Although one can trace cognition back many centuries, more contemporary scholars see the 1940s–1960s as seminal decades with regard to cognition. Out of the ravages of World War II, theories, hypotheses and aspects of cognition and human information processing (HIP) started to emerge both in the United States and Britain. Arguably, Donald Broadbent's 1958 *Perception and Communication* and Neisser's 1967 *Cognitive Psychology* set the tone. Both covered much ground in their respective texts and areas of study in each are still empirically investigated to this day. For instance, Broadbent included chapters on individual differences and vigilance performance while Neisser included chapters on words as visual patterns and echoic memory and auditory attention. It is also important to know that the study and field of cognitive psychology as related to personality and individual differences are ever-expanding as evidenced by recent papers published in the journal *Personality and Individual Differences* (Carl, 2015; Shorey, Elmquist, Anderson & Stuart, 2015; Soboki & Zelinski, 2015).

A fundamental question facing psychologists at the time was how individuals process information. Do they do so via a typical stage theory, where one stage must finish before another stage can start? Or do they instead allow multiple processes to occur at the same time over a specific time period with no specific start and stop time for stage development and execution? While these models have evolved over the past 50–60 years, another fundamental requirement of cognitive processes is that they are internal mental representations of actions, events, and procedures. Their existence is assumed by changes or alterations in behavior although the exact process (or processes) is unseen and not observable. This key operation definition of cognitive processes will be taken up when I discuss the use of reaction time later in this entry.

How do Cognitive Processes relate to Abilities and General Features?

One hallmark of cognitive processes as detailed previously is that they are often used to define behavioral characteristics that relate to general ability. For instance, someone can be either fast or slow, loud or quiet, or correct or incorrect. These and other dimensional qualifiers allow for a continuum of ability level (good, poor) that often can be tied to underlying cognitive processes. In turn these can be related to issues in personality in the sense of someone who might be regarded as "impulsive" might therefore process information in a fast way, yet might also make many errors due to the quickness of their responses style. Likewise, someone who is socially withdrawn or shy may take longer to respond in social situations that rely on social contact and interaction. Why these individuals may be fast and inaccurate or socially withdrawn can be traced back to variations and aspects of their ability (or inability) to adequately process information.

How to study Cognitive Processes, Abilities and General Features

As mentioned above, one typical option in studying people of differing abilities is to quantify them along a continuum (fast-slow, good-poor, high-low, right-wrong). Often times this also involves some dimension of personality. And while many professional journals exist that document such empirical types of studies, *Personality and Individual Differences (PAID)* is arguably one of the best empirical journals in this regard. For instance, a recent issue of this journal included articles ranging in topics from hardiness and the Big Five Model (Costa & McCrae, 1992) to subclinical psychopathic subtypes to selfie posting behaviors and narcissism. Likewise, the various methodologies employed in these are other articles in this issue including the dot-probe task, the lateralized lexical decision task, thought suppression using rumination induction. As the aims and scope of this journal detail, PAID is devoted to the publication of articles which integrate the major factors of personality with empirical paradigms or to seek explanation for the cause(s) and major determinants of individual differences. Many papers that appear in this (and other) journals employ reaction time (RT) methodologies as a means to these ends.

To this end, a recent chapter by Robinson (2007) nicely shows how the use of RT to study cognitive processes at the millisecond (ms) level has wide appeal and applicability to the study of personality. He outlines three broad arguments as to why the millisecond timing approach that dominates cognitive psychology may be as or more appealing to those who study personality. These three approaches include the objective nature of measuring personality using RT; the observation that RT relationship to cognitive processing is able to assess and interpret behavior in real time; and the ability to assess and explore the dynamic aspect(s) of personality at the cognitive level. Despite these applications, Robinson (2007) is right to observe that cognition and information processing are dynamic and ever-changing while, for most of us, personality differs little across the lifespan. Nonetheless, RT and its use to identify the many underlying cognitive stages and processes and individual possesses are critical for a more well-defined definition of personality and its assessment.

The Case for Response Time/Reaction Time as a Methodological Issue

One way to examine the underlying (and unobservable) information processing stages and variables is to employ a reaction time (RT) paradigm. Studies of RT, and especially those that map out and identify the internal mental representations associated with cognitive psychology and information processing, are not new. In fact, one can examine the work of Donders (1869, 1969), who showed that by using the subtractive method one can examine the execution as well as the duration of mental processes. Recent examples of this subtractive methodology include simple reaction time (SRT), Go-NoGo Task, and choice reaction time (CRT) tasks. As the name implies, SRT is simply the time taken (usually measured in milliseconds, or thousands of a second) to respond to a stimulus (e.g. light, sound, touch). In the Go-NoGo task, subjects must respond to one specific stimulus (red light) while not responding to another specific stimulus (green light). Finally, CRT suggests that subjects made one response to one type of stimulus (press the M key when a word appears on a screen) and another response when a different stimulus appears (press the X key when a non-word appears on the screen). While Donders' approach was widely popular at the time, recent updates have concluded that specific stimuli can affect performance not only quantitatively (as Donders had speculated) but also qualitatively. Sternberg (1966) revised and refined Donders' work to accurately measure the times needed for executing various hidden mental processes and mental events. Cognitive psychologists now routinely measure these hidden internal mental representations using many of the RT paradigms listed above. Likewise, many types of psychologists also now routinely use RT to examine information processing abilities and deficits across a wide range of personality variables. In turn, it is now possible to make predictions about how information processing tasks using RT can tell us about the underlying mental events of a variety of personality-related subgroups as well as those with personality disorders.

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Assessment of Antisocial Behavior

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Antisocial behavior is characterized by overt and intentional hostility and aggression toward others. This can debilitate an individual from functioning normally in society. The majority of research conducted on antisocial behavior assessment has focused on the prevention of criminal behavior. All too often, the characterization of antisocial behavior is presented in criminal behavior, which can prevent individuals from contributing normally to society and limit their future opportunities. Antisocial behavior tends to be prevalent in individuals that display certain degrees of personality traits. The degree of personality traits in which an individual is more likely to display in antisocial behavior has led to the identification of antisocial and narcissistic personality disorders. Although there are many personality traits to take into consideration in regard to personality disorders and antisocial behavior, personality traits that display malicious intent have attained a large amount of attention in research examining antisocial behavior. Malicious personality traits include sadism, Machiavellianism, narcissism, and psychoticism. Although each of these traits increases the likelihood that an individual will engage in antisocial behavior, psychoticism seems to be the most recognized trait. Psychoticism is defined as aggressiveness and interpersonal hostility that results in impulsivity, risk taking, and/or violent behaviors and actions. Before discussing further the assessment of antisocial behavior, it is important to understand the intellectual and social contexts of antisocial behavior development.

Theoretical and Social Contexts of Antisocial Behavior

There are three primary areas of psychological theories that link antisocial behavior to personality. The focuses behind these theoretical areas of personality regarding antisocial behavior include descriptive and exploratory factors, social conditions, and development. To begin, there are theories that focus heavily on the essentialness of personality traits for

understanding descriptive and explanatory factors of antisocial behavior. For instance, research utilizing the Five Factor Model has found that individuals who present antisocial behavior have the tendency to display higher levels of extraversion and neuroticism, as well as lower levels of agreeableness and conscientiousness.

Although some personality theories focus on general personality traits to describe antisocial behavior, other theories have focused on the interaction between less general personality traits and poor social predispositions that contribute to antisocial behavior. For example, research utilizing Eysenck's Psychoticism-Extraversion-Neuroticism (P-E-N) Model has shown that individuals that are high in extraversion, neuroticism, and psychoticism, and have experienced poor childhood and/or environmental conditions are more likely to commit crimes. Eysenck's P-E-N Model has been exceptionally useful for assessment because the model identifies a combination of personality factors that increase the likelihood of antisocial behavior. Eysenck created the P-E-N Model because the three factors in the model (psychoticism, extraversion, and neuroticism) display less overlap than the personality traits assessed in the Five Factor Model. In regard to antisocial behavior, Eysenck hypothesized that individuals would be at a greater risk of developing antisocial behavior if they scored high on all three P-E-N Model factors as well as low scores on the Lie Scale, a fourth component to Eysenck's Personality Questionnaire-Revised (EPQ-R) that is accompanied by scales for each of the P-E-N Model factors. Recent research has found that there was a significant difference between individuals that fit these criteria and those that do not.

Finally, developmental theories have suggested that dispositions toward maladaptive behavior and malicious personality traits presented early in life increase the likelihood of the individual engaging in antisocial behavior. Specifically, the general propensity theory has suggested that impulsive individuals will display low self-control early in life and are more likely to engage in antisocial behavior. On the other hand, the developmental trajectory theory emphasizes several factors that cause deviant behavior like poor social conditions such as poverty or familial distress. In consideration of poverty and poor household conditions, malnutrition can cause children to develop antisocial behavior that is debilitating without treatment. This can often grow more severe over time, especially if the malnutrition continues as a child is developing. There are a variety of other social conditions that have been linked to the development of antisocial behavior, aside from malnutrition. Other social conditions include lack of or poor social support networks, large amounts of distress, and trauma. Although developmental theories focus on the development of maladaptive behavior and malicious personality traits in childhood and adolescence, it is possible for antisocial behavior to develop in adulthood. However, this generally occurs because of traumatic brain injuries or neurological disorders that develop in adulthood.

Major Dimensions of Antisocial Behavior Assessment and Research

Although personality trait theories are important for understanding the psychological mechanisms that contribute to antisocial behavior, it is also clear that neurological assessment of antisocial behavior can be important for understanding this form of maladaptive

behavior. Historically, the literature on antisocial behavior presents cognitive factors that are related to behavior and personality change after brain lesions. For example, in the case study of Phineas Gage published in 1868, Gage displayed cognitive, behavioral, and personality dysfunctions after experiencing a brain lesion in the orbitofrontal cortex. Although this case study laid a foundation for neurological assessment of antisocial behavior many years ago, current research has placed emphasis on the use of modern medical equipment and technology to understand neurological mechanisms of antisocial behavior. These current neurological assessments have identified poor executive functioning as a major contributor to the increased likelihood of antisocial behavior. Generally, these assessments are used to determine intellectual and mental capacity in which low levels are related to identifying psychoticism, and therefore, antisocial behavior.

Although understanding the development and neurological mechanisms of antisocial behavior is important, being able to properly identify and assess antisocial behavior is necessary for providing treatment early on, which can make a huge difference in how the individual with antisocial behavior and the people around them are affected. Furthermore, these assessments and interventions can contribute to a decrease in criminal behavior which individuals with antisocial behavior are likely to engage in. Although experimental research and neurological assessments focus on the causes of antisocial behavior, assessments of personality typically focus on psychoticism and other malicious personality traits (such as sadism, Machiavellianism, narcissism) to predict antisocial behavior.

There are a variety of measures used to assess and predict antisocial behaviors. The Elemental Psychopathy Assessment is used to examine maladaptive variations of personality traits from the Five Factor Model that are related to psychopathy. However, one of the more popular scales used to assess psychopathy in relation to antisocial behavior is the psychoticism subscale of the EPQ-R. EPQ-R assesses the traits described in Eysenck's P-E-N Model as well as a subscale to assess lying. Another commonly used measure to assess malicious personality traits is the Dirty Dozen. This measure is used to assess the Dark Triad personality traits, which include Machiavellianism, narcissism, and psychopathy. Although the Dirty Dozen has been a popular measure for measuring Dark Triad personality traits, the new Short Dark Triad measure is becoming a more popular way to assess the Dark Triad personality traits. The Short Dark Triad measure was constructed in 2014 to provide a faster way of measuring these traits without being too short, like the Dirty Dozen which only consists of 12 items. With the Short Dark Triad, both Machiavellianism and narcissism are assessed with nine items per construct and psychopathy is measured with six items, whereas each trait is only measured with four items per construct in the Dirty Dozen.

Although measures focusing on an array of malicious personality traits can be useful for assessing and identifying individuals likely to engage in antisocial behavior, many of these traits can also be assessed with individual measures. For instance, Machiavellianism had been measured using the Mach IV Inventory for decades until the Machiavellianism Personality Scale was developed in 2009. Narcissism is typically assessed by using the Narcissistic Personality Inventory. However, some recent research has used the newly constructed Five Factor Narcissism Personality Inventory to assess narcissism. Psychopathy/Psychoticism has been assessed using the Elemental Psychopathy Assessment and the Psychoticism subscale of EPQ-R. Finally, sadism has been assessed using the Short Sadistic Impulse Scale and the Varieties of Sadistic Tendencies measure.

Future Directions of Antisocial Behavior Assessment and Research

Although there are many ways to assess antisocial behavior, there is still more to be done. One primary emphasis in antisocial behavior assessment currently is the developmental contributions to antisocial behavior. Research on this topic has turned its focus on longitudinal data to identify social, biological, and environmental factors that influence antisocial behavior. Future research in this area should also focus on pregnant women to understand how habits and activities during pregnancy influence developmental outcomes during early childhood and adolescence. In regard to the need of understanding the developmental outcomes of children, longitudinal research is important for identifying changes over time in individuals prone to antisocial social behavior.

Although emphasis for future research has primarily indicated the need for longitudinal data, some recent cross-sectional research has focused on the identification of environmental and social setting factors (such as location of residence, familial income levels, and social interactions) to determine if differences between groups influence antisocial behavior. As an example, research has shown that individuals that are in hostile familial settings and/or poor living conditions tend to be more likely to engage in antisocial behavior than individuals not in these conditions. However, another major area of future research that has been pointed out by major contributors to research on antisocial behavior is intergenerational studies. Not only should this integration take place between generations through cross-sectional research, but antisocial behavior should also be assessed through an integration of longitudinal research examining biopsychosocial development, community factors, and environmental factors. Longitudinal studies are highly suggested in current research to fully understand these integrations of factors that contribute to antisocial behavior over time.

Although a vast amount of research indicates a need for longitudinal developmental studies, neurological assessment of antisocial behavior is important to identify genetic predispositions to antisocial behavior. As technological advances continue and research becomes more complex, the use of neurological assessments has the potential to reveal neural and genetic mechanisms of antisocial behavior. By examining genes of individuals in early childhood, longitudinal research can examine if any of these genetic factors seems to produce individuals that engage in antisocial behavior. Longitudinal research is not only important for identifying antisocial behavior, but also to specifically identify developmental changes that may influence the likelihood of an individual engaging in specific antisocial behaviors, such as criminal behavior. Making these identifications can allow future researchers to design interventions and procedures that can decrease the likelihood of an individual engaging in antisocial behavior.

In regard to identifying factors of influence for antisocial behavior, a massive effort regarding personality factors in this area of study should be to identify and assess individuals likely to engage in criminal antisocial behavior. Since antisocial behaviors are linked to criminality, this area of focus is important to reduce criminal behavior and provide interventions for those that have committed criminal acts. As mentioned earlier, individuals that are high in extraversion, neuroticism, psychoticism, aggression, and hostility, as well

as low in agreeableness and conscientiousness, maintain a high likelihood of engaging in antisocial behavior that can lead to them committing criminal acts. However, research has also identified other personality characteristics that influence criminal antisocial behavior. These characteristics include lack of self-control and high levels of sensation seeking and impulsivity. As scales of measurement continue to become more complex and reliable, it is very important to examine antisocial behavior from a personality perspective to create treatments and interventions that can change these personality factors.

See Also

Behavioral Assessment Techniques of Personality in Children
Eysenck Personality Questionnaire-Revised (EPQ-R)
Narcissism, Assessment of

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Career and Vocational Interests and Abilities, Assessment of

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Conceptualizations

Assessment of career and vocational interests and abilities is an essential activity in career counseling and vocational development. The purpose of assessing career interests and abilities is to facilitate self-exploration and self-understanding with respect to one's interests, abilities, or perceptions of one's abilities. These assessments help people gain self-knowledge, generate career choices, and make effective career decisions.

A Brief History of Career Assessment

Career assessment has been in practice since the 1900s when Frank Parsons developed the first framework of career guidance. According to Parsons, career guidance involves three basic steps: (1) a clear understanding of oneself, one's interests, aptitudes, abilities, ambitions, resources, and limitations, (2) knowledge of the requirements and conditions in different lines of work, and (3) the true reasoning on the relations of these two groups of facts. Parsons was among the first proponents of using career assessment for the purpose of clearly understanding the person. Parsons's framework has served as the foundation for the trait-and-favor theories in career counseling and development, which are fundamental in guiding the development and use of many career assessment inventories including assessment of career interests and abilities.

Interests and Abilities

Interest is one of the most frequently assessed attributes in career counseling and career assessment. Interests can be classified as expressed interests, manifest interests, and inventoried interests. Expressed interests are the activities that individuals state they like to do.

Manifest interests refer to the activities that they are actually spending time on. Inventoried interests can be identified through interests inventories, such as those introduced in this entry.

Ability is another important attribute frequently measured in career assessment. Ability is closely related to two other attributes, aptitude and achievement, but a conceptual distinction among them is necessary. Achievement can be understood as something that the individual *has already learned* or *achieved*. While aptitude reveals the potential level of ability with which one may perform well on a task in the *future*, ability refers to the level of *present* ability as demonstrated by one's current performance on a task. Self-perception of ability is often conceptualized as self-efficacy in career counseling and development. Self-efficacy, a key concept in social cognitive career theory, is defined as one's confidence of one's ability to organize and take action to attain certain career goals. Self-efficacy, though a relatively new construct in career development, has been intensively studied and has been demonstrated to impact career choices, career decision-makings, and attainment of career goals.

It should be noted that interest, actual level of ability, and self-efficacy are all related but different constructs. Research has found a small but significant correlation between interest and self-efficacy. One may be interested in doing something but may not feel confident in such an activity, and vice versa. Similarly, one's actual level of ability in doing something might be high, but one may or may not be interested in the activity and may or may not feel confident in performing such an activity. Therefore, it is important that all of these attributes, together with many others, should be evaluated and considered in generating career choices and making career decisions.

Assessment of Career and Vocational Interests

Theoretical Framework

Expressed interests and manifested interests can be assessed through qualitative approaches such as interview or observation. However, in the context of career and occupational development, interests are most often assessed by career interest inventories. Many of the interests used in career counseling are based on John Holland's trait-factor model and in these inventories, career interests are largely an expression of one's personality type.

According to Holland, people and work environments can be classified as six types: Realistic (R), Investigative (I), Artistic (A), Social (S), Enterprising (E), or Conventional (C). People search for, do well in, and feel satisfied with environments that are congruent with their personality types. "R" describes "doers" who like to work with tools or machines and generally avoid intensive interaction with people. "I" describes "thinkers" who enjoy analyzing and investigating but avoid leading and selling, or persuading people. "A" individuals are "creators" who like creative activities such as art, drama, or creative writing, and generally avoid highly ordered or repetitive activities. "S" are "helpers" who enjoy helping people such as teaching, counseling, or nursing, and generally avoid situations involving operation of tools and machines. "E" people are "persuaders" and like to lead, manage, and persuade people, and avoid activities that require careful observation and scientific,

analytical thinking. Lastly, "C" people are "organizers" and like to work with numbers, records, and keep things ordered and structured. These six types are described in a hexagonal configuration and this theory is often known as Holland's hexagon model. According to this framework, individuals typically are not "pure" of one type; rather they are a combination of several types with one or two more dominant types. Therefore, many of the career interest inventories based on this model will use a three letter-code to represent the first three most significant types, also known as Holland's theme code.

Self-Directed Search (SDS)

The SDS was originally developed by John Holland in 1970 based on his theory of career development and is currently in its fourth edition revised in 1994. SDS is a self-administered, self-scored, and self-interpreted inventory that is available in paper-pencil, computerized, and most recently, online formats. Form R (Regular) is the most commonly used SDS, appropriate for high school students, college students, and adults. It has 228 items asking examinees whether they like certain activities, have confidence in certain competencies, are interested in and appealed to certain occupations, and to estimate their abilities on a 7-point Likert-type scale. From these responses, scores are obtained on each of the six RIASEC types and the examinee's Holland theme code is generated based on the rank of these scores. These scores can be used in combination with auxiliary materials that include *The Occupations Finder*, *The Educational Opportunities Finder*, and *The Leisure Activities Finder*. These materials contain lists of occupations, educations, and leisure activities classified according to the Holland system, with each occupation, education, and leisure activity having its own Holland theme code. Apart from the purpose of self-understanding, SDS in combination with these materials can help an individual generate career choices that are congruent with their personality types and determine where the best fit may occur between the person and the environment.

Reliability studies with the fourth edition indicate strong internal consistency and test-retest reliabilities. Readers are referred to the SDS Professional User's Guide by Holland and colleagues (1997) and Further Reading for detailed evidence of reliability and validity.

Strong Interest Inventory (SII)

The Strong Interest Inventory, also known as the *Strong*, is one of the most widely used assessments of interests. It was originally developed and published as *The Strong Vocational Interest Blank* (*SVIB*) in 1927 by E. K. Strong. SII has been substantially revised over the decades. David Campbell made the first major revision in 1974 by incorporating Holland's hexagonal model and SVIB was renamed as *Strong-Campbell Interest Inventory* (*SCII*). Holland's mode continues to be the foundation of all the following revisions. SCII was revised again in 1981 and 1985 to include gender-balanced scales with equitable career options for both men and women. The 1994 revision greatly increased the sample sizes of the male and female norms. SII was most recently revised as a whole in 2004 with a purpose of shortening the inventory, updating it with current occupations, and reflecting the diversity of the U.S. workforce.

The current SII has 291 items and provides four main types of information concerning one's interests: (1) scores on six General Occupational Themes (GOTs) corresponding to Holland's RIASEC types, (2) scores on 30 Basic Interest Scales (BISs), which describe the general interests in more specific areas, (3) scores on 122 Occupational Scales (OSs), which represent the degree of similarity between one's interests and the characteristic interests of those working in such occupations, and (4) scores on five Personal Style Scales (PSSs) that summarize one's orientation with respect to work style (i.e. alone vs. with people), learning environment (i.e. practical vs. academic), leadership style (i.e. comfortable vs. uncomfortable in assuming leadership), risk-taking (like vs. dislike risk-taking), and team orientation (working on teams vs. working independently). SII also provides the Administrative Indexes that help identify inconsistent or unusual responses and invalidity of the profile. The SII was most recently updated in 2012, focusing on OSs only to keep them as current as possible. The newly updated OSs include 130 scales that are separate for males and females and have been integrated in the *Strong* family of reports.

Reliability and validity of SII have been supported by many studies. Both the internal consistency reliability and the test-retest reliability have improved in the most recent revision. Readers are referred to the SII Manual by David Donnay and colleagues, published in 2004, for details of its reliability and validity.

Assessment of Career and Vocational Abilities

General Aptitude Test Battery (GATB)

GATB, published by U.S. Department of Labor in 1982, has been one of the most widely used test batteries assessing abilities. In general, GATB intends to measure abilities required for many occupations. It measures a broader range of abilities than many academic aptitude tests. Specifically, GATB can provide information on an individual's ability profile across the following nine general areas: General Learning Ability (G), Verbal Ability (V), Numerical Ability (N), Spatial Ability (S), Form Perception (P), Clerical Ability (Q), Eye/Hand Coordination (K), Finger Dexterity (F), and Manual Dexterity (M). Apart from assessing individuals' abilities in career counseling and development, GATB has been used by the U.S. Department of Labor to generate occupational ability patterns that characterize the occupations in terms of their requirements of abilities for a variety of jobs. While GATB continues to be used as an assessment of career abilities, the U.S. Department of Labor has updated it to O*NET (*Occupational Information Network Online*) Ability Profiler (AP) which measures a similar set of abilities. The O*NET Ability Profiler is used as a career exploration tool that helps clients identify their strengths and find occupations that fit their strengths.

Skill Confidence Inventory (SCI)

SCI is 60-item inventory assessing one's perceived ability to successfully complete a variety of tasks and activities that correspond to the six Holland types. The SCI has been integrated in use with SII and the confidence scores are aligned with the *Strong*'s GOTs. Apart from

the levels of skills confidence corresponding to the GOTs, SCI provides the Skills Confidence-Interest Comparison, which compares levels of confidence with levels of interests revealed by SII. The integrated use of SCI and SII helps examine individuals' interests and perceived abilities simultaneously to understand their interest patterns and thus provide information that neither inventory provides alone.

Further Considerations

Although assessment of career interests and abilities provides important information for career counseling and career development, some cautions and considerations should be kept in mind in use of these assessments. Interests tend to become progressively stable with age, but changes in interests are always possible. Just as one can obtain new abilities and skills through training, one's perceived ability can also increase as a result of career counseling. It is important to keep a dynamic perspective to view the impact of one's interests, abilities, and perceived abilities, as well as their interactions with one's career choices and development. Moreover, like many other self-report inventories, interest inventories are subject to response bias; therefore, scores from assessments of career interests and abilities should be interpreted in the context of one's profile validity, as well as the examinee's testing behavior and emotional states. Interest and ability inventories may not be appropriate for individuals with emotional distress, such as depression or mania, as they may strongly affect their scores.

See Also

Abilities, General Features and Methodological Issues
John Holland
Personality, Interests, and Careers

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Cognitive Aging, Assessment of

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What is Cognition?

As discussed in "Assessment of Cognitive Processes and Abilities, General Features and Methodological Issues" (Ferraro, in press), cognition is how individuals think, problem solve, make decisions, speak, walk, and perform a whole host of information processing activities. Since many of these information processing activities are internal mental representations of actual events, one must be careful regarding how one measures these actions and processes. Reaction time (RT) is one of the most common methodologies employed to measure and study internal mental representations. Likewise, RT is often one of the more controversial methodologies.

What is Aging?

By definition, adulthood and aging is the period from approximately 20 years of age until death. Developmental psychologists, by comparison, study aging (i.e. there are chapters dealing with late-life-development in many developmental textbooks) but they also study pre-natal and pre-adulthood development phases of life. Aging can actually be broken down into various subcomponents which include early adulthood, middle adulthood, and late adulthood. The actual age ranges of these subcomponents vary, but it is generally agreed upon that early adulthood ranges from 20–40, middle adulthood ranges from 40–60 and late adulthood ranges from 60–death. As mentioned, these ranges are variable, most likely due to longevity and life-expectancy issues. For instance, life expectancy for both men and women increases each year. Furthermore, there are more centenarians (those who live to be 100 years of age or older) in the United States and one of the fastest growing age groups currently are those individuals aged 65 and above as well as those 85 and above.

Thus, middle age 30 years ago is vastly different from current middle age. For the purpose of this entry, I will be concentrating on issues as they relate to late adulthood.

Personality Aspects of Cognitive Aging

Despite many positive and negative changes with age, personality for the most part seems age-invariant. That is, many personality traits (i.e. Big Five; Costa & McCrae, 1992) remain relatively constant across early, middle and late adulthood. While there are no (or very few) age differences, there are substantial cohort differences. Thus, many of our personality changes with age are based on what we have experienced as we age as compared to just age alone.

   Similarly, the assessment of cognitive function in age can also be influenced by the specific type of experimental design used by the researcher(s). For instance, most studies of cognitive aging rely on cross-sectional types of experimental designs in which a group of young adults is compared on some task or collections of tasks to a group of older adults (now often broken up onto middle age and old age groups). Such designs are relatively easy in that subjects need only participate one time. Conclusions can be drawn but the elusive cohort confounding that often plagues such designs are not immediately apparent. In other words, an experimenter may show age differences on some task (younger faster than older, older faster than younger, etc.) but little more. Cross-sectional types of designs do not allow for the investigation of cohort differences. Thus, the relative ease of cross-sectional designs is hampered by not being allowed to fully investigate possible (and most likely probable) cohort influences across the two (or three) groups of subjects. An alternative to cross-sectional designs are the so-called longitudinal designs, in which subjects are tracked and assessed more than once and typically over a period of several years. A plus of the longitudinal design is that individual change can be assessed and examined (which is not the case in cross-sectional designs). However, assessing and examining such individual change is costly, subjects either die or decline continued participation, and it is somewhat tricky to make lasting conclusions because time of measurement problems are typical (Feng, Silverstein, Giarruusso, McArdle, & Bengston, 2006). To remedy these (and other) potential problems with longitudinal designs, Shaie (1990) developed cohort-sequential designs, which combine aspects of cross-sectional and longitudinal designs and allow for the teasing apart of true age effects from effects due to cohort issues. Because of their costly nature, large samples sizes and lengthy duration (30–40 years or more), few of these sorts of designs are attempted. However, within the cognitive aging literature, two such endeavors stand out (Baltimore Longitudinal Study of Aging, Seattle Longitudinal Study on Intelligence) as having contributed much to the assessment of cognitive function and aging.

Individual Difference Aspects of Cognitive Aging

Another somewhat surprising aspect of aging is that various individual differences are apparent through the aging process and have resulted in the reduction in the proliferation of some myths regarding the aging process. For instance, it is now common to break

down the late adulthood stage into the young old (65–85) and the old-old (85 and above). Given the increases in the number of centenarians and even so-called super centenarians (110 and older), there are now many individual differences that extend into our 80s, 90s, and beyond. One variable that has gained much attention recently in the cognitive aging literature involves reaction time. Specifically, in what are called Brinley (1965) plots, reaction times to tasks undertaken by younger and older adults show evidence of where age differences exist and where they do not. Brinley plots examine cognitive slowing, which is a fundamental outcome of even normal healthy aging. That is, our information processing system slows with age such that we slow a little bit each decade we are alive. Slowing begins its decline at around age 20 and continues thereafter. Older adults often compensate for these slowing patterns but Brinley plots allow for an examination of what processes slow and to what extent they slow. The slope of the best-fit line through a series of RT points is an indication of slowing. If, for instance, the slope of a best-fit line is 1.0 that would indicate there is no slowing and younger and older adults are responding similarly. Conversely, a slope of 1.5 would indicate that older adults on some specific task are 1.5 times slower than their younger adult counterparts who participated in the same experimental conditions. While not everyone agrees with the Brinley plot analysis, it has been very helpful in delineating what slows with age and to what extent it slows.

Although this entry has discussed reaction time methods, others are also available to examine a multitude of cognitive functions in aging including problem solving, decision-making, learning and memory as well as text comprehension. While many of these involve reaction time, that is not the only method of assessment. Real-life scenarios involving tasks relevant for older adults (i.e. financial planning, medication adherence, social interaction) also tap into a multitude of cognitive processes and processing, especially issues related to planning, decision-making, and problem solving. Inherent in many of these endeavors is a properly functioning frontal lobe. The frontal lobes decline normally as we age, yet this part of the brain is actively involved in many underlying cognitive processes (Cabeza, 2004) and its decline often leads to problematic cognitive functioning in older adults. These can include problem-solving difficulties, incorrect or impulsive decisions, or aspects of planning that are not adequate for the task at hand. Recent advances in brain imaging (especially magnetic resonance imaging (MRI) and positron emission tomography (PET)) have shown how the aging brain operates in times of frontal lobe deficit and other related cognitive actions. These techniques show promise and have been used extensively within the aging population (Winecoff, LaBur, Madden, Cabeza, & Huettel, 2011).

Future Directions

Given the longevity and life-expectancy issues discussed previously, the future of aging's effect as it relates to personality and individual differences seems very promising. In fact, despite the controversy surrounding Brinley plots (see Fisk & Fisher, 1994), recent reports indicate the usefulness of Brinley plots with regard to functional brain imaging and aging (Peiffer, Maldjian, & Laurienti, 2008).

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Creativity, Assessment of

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Concepts and Constructs

Progress often depends upon creative thinking – the inventive, subjective, and free form thinking that generates alternate viewpoints, curiosity, and imagination. Currently, there are countless definitions of the construct and no commonly agreed upon version, although a generally accepted characteristic is a distinct and productive concept or thought. The measurement of creativity has also taken on various forms, although one aspect of measurement that has been generally adopted is divergent thinking, the ability to produce as many appropriate responses as possible in a limited amount of time. Influences of personality and cognitive traits have been found to factor into the measurement of divergent thinking. Three factors of intellectual ability that play a role in divergent thinking have been proposed: fluency of thinking – verbal, ideational, and associational; flexibility of thinking – spontaneous thinking; and originality – uniqueness of thought. Fluency of thinking is primarily the capacity to have a ready flow of ideas; flexibility is marked by the ability to quickly change direction; and originality is the ability to be versatile in thought. These aspects of creative thought production can be assessed through verbal and non-verbal methods. Divergent thinking is often correlated with commonly studied creative personality traits such as openness in the Five Factor Model and the psychoticism scale of the Eysenck Personality Inventory.

Personality and Attitude Assessments

Although the link between creativity and personality has been extensively studied, the personality variables related to divergent thinking do not render consistent findings across studies. There are several inter-correlations worthy of consideration. Eysenck and Eysenck's (1976) dimensions of extraversion and introversion (E), neuroticism and stability (N), and psychoticism and superego (P) yield some clear and reliable patterns to suggest that they are stable traits in the personality structure. Extensive research has also been conducted

showing correlations between openness, extraversion, and divergent thinking. For example, through early work using Eysenck's Personality Questionnaire with a large sample students, Di Scipio (1971) revealed that people who were more outgoing showed significantly higher fluency scores than those who were more reserved. In a more recent study on divergent thinking by Furnham and Bachtiar (2008), 176 participants were tested in a group setting to find that there were significant relationships between openness, extraversion, and divergent thinking. Furthermore, McCrae (1987) consistently found peer ratings and self-reports of divergent thinking related to openness.

Some evidence suggests that mental illness is related to creative behaviors. Increased energy, flights of ideas, and possessing hypomanic personality traits (such as higher extraversion and higher openness) have been associated with the proliferation of creative works. Additionally, Eysenck suggests that highly creative people often show personality characteristics closely related to schizophrenia or other psychotic disorders. Studies have used artistic achievement as a means of measuring originality and creativity. Some work has found a significant correlation between psychoticism and creativity, enhancing the hypothesis that certain personality traits are more prevalent in creative people. However, it has also been shown that psychoticism is not a necessary characteristic to exhibit creative tendencies and that the throes of psychosis can cause productivity to significantly decline. Although this is a fascinating topic that has been studied from many angles, more work is needed to substantiate relationships between creativity and personality traits associated with various psychiatric diagnoses.

Sensation seeking has also been linked to the creative personality. According to Zuckerman (1994), sensation seeking is a personality trait encompassing the willingness to take significant risks in the pursuit of novel and intense experiences. Sensation seeking can be broken down into four subcomponents based on factor analyses conducted by Zuckerman and his associates in the 1960s. Thrill and Adventure Seeking involves a drive toward unusual sensations through risky activities. Experience Seeking pertains to practical influences that contribute to novel experiences (like driving and sports). Disinhibition is characterized by a drive to be free of social constraints. Boredom Susceptibility is the propensity to avoid monotonous situations. These subcomponents that define the sensation-seeking trait mimic the motivation for developing unique and creative ideas. Therefore, just as divergent thinking is the ability to render unusual solutions to problems, sensation seeking is the contemplation of unconventional ways to discover novel experiences. These two traits, divergent thinking and sensation seeking, seem to complement each other to build the platform for producing new and interesting ideas.

Measuring Divergent Thinking

A number of psychological tests have been developed for the purpose of quantifying creativity in the form of divergent thought. Several popular tests are summarized. A common theme is that validity evidence for the measures is weak. While there is some evidence of construct validity, more research is needed in order to produce solid criterion-related validity such that the scores produced would also be related to important outcomes or predictions in the real world.

Torrance Tests of Creative Thinking

This test was originally designed to identify students with creative potential by measuring fluency, flexibility, and originality. The test is administered with pencil and paper and contains two sections, a verbal one consisting of seven subtests and a figural one consisting of three subtests. Although the test is easy to administer and score, the reliability and validity of the test should be approached with caution due to varying testing environments, interpretation of scores, and lack of standardized administration procedures. However, the inter-correlations between the subtests have been shown to be adequate enough to indicate that the subtests are tapping into similar capabilities.

Calibrated Ideational Fluency Assessment

This assessment is a paper and pencil measure with two subtests, verbal fluency and non-verbal fluency. The verbal fluency section has two one-minute tests for spontaneous production of letter word fluency (producing as many words as possible that begin with a certain letter) and two one-minute tests for category word fluency (producing as many words as possible fitting the categories of supermarket items and animals). The non-verbal fluency subtest requires participants to produce as many drawings as possible with the same four parts in four minutes. To earn credit, the designs are compared to standardized scoring samples. Additionally, the designs cannot be recognizable or nameable, and each drawing has to be different. Interrater reliabilities were assessed using intraclass correlation coefficients and ranged from .87 for total word fluency scores to .97 for acceptable design fluency scores. The validity of this test has been shown to be effective for assessing divergent thinking and shows high test-retest stability.

Guilford Alternate Uses Measure

Recent studies have used this method to assess divergent thinking fluency. Participants are given two minutes for each item, i.e. a tissue and a lint roller, to identify as many uses as possible. This test is scored by counting the number of feasible uses produced. Additional scores are recorded for originality by counting the number of unique or remote responses, and flexibility by counting the number of diverse responses in varying categories of ideas. These scores are subjectively determined by one rater to reduce the error of variance. This test is designed to measure the number of novel ideas of the participant in comparison to the total number of ideas, therefore measuring divergent fluency as related to creative potential.

Creative Intelligence

A large amount of research has been done correlating intelligence with creativity. A traditional way to subdivide intelligence into two dimensions involves crystallized intelligence (*gc*), which is the ability to organize and use conceptual information, as opposed to fluid

intelligence (*gf*), or reasoning ability. Batey, Chamorro-Premuzic, and Furnham (2009) proposed that cognitive efficiency plays an important role in rapidly producing fitting responses to divergent thinking tests. However, the results of their research showed that fluid intelligence was not markedly related to divergent thinking; therefore, intelligence seems loosely related to creativity.

Sternberg (2005) presents the Theory of Successful Intelligence, which provides a broader view of intelligence by breaking it down into components of analytical intelligence – evaluation and judgments of abstract theories; creative intelligence – evaluation of novelty in problem solving; and practical intelligence – applying adaptive behaviors to suit the environment. This theory, sometimes referred to as *triarchic* because of its three subtheories, reveals that creativity and its relationship to intelligence are not simply based on conventional information processing.

Sternberg and Lubart constructed the *Investment Theory of Creativity* to explicate why some people have more creative ability than others. There are six areas of creativity considered in this theory – intelligence, knowledge, intellectual styles, personality, motivation, and environment, with the last area being the only one that is context-centered and the rest being focused around the person. Each area highlights an aspect of creativity that contributes to the creative product; however, it is also discerned that it is not necessary to have full involvement of each resource in order to produce creative thoughts or actions. The Multifaceted Assessment of Creativity was designed to characterize the six resources of the Investment Theory of Creativity. The measure was found to have high internal consistency and validity for assessing the six dimensions of the Investment Theory of Creativity, lending insight that it is possible to develop creativity among the six areas.

The Future of Assessing Creativity

Creativity has become a topic of psychological research that continues to develop, with over 10,000 papers written in the past decade. In spite of that, the definition and nature of creativity still remain under debate. Kaufman and Beghetto (2009) have attempted to expand the model of *Big-C* creativity, which identifies those who excel at very high levels of creativity, and *little-c* creativity, which focuses on everyday creative thinking. They propose to add additional facets of creative potential, *mini-c* and *Pro-c,* to this theory to close the gap of what is recognized as creative potential. The category of mini-c is designed to include how creativity is employed during the learning process. On the other hand, Pro-C represents those who have reached a status of expert in their creative approach. By expanding the model, a new level of complexity emerges and expands the boundaries of areas to explore and research.

While there many theories of creativity and methods available for its measurement, creativity remains a fairly abstract concept. Future research needs to clearly state the operational definitions of creativity used and establish ecologically valid indicators of creative talent. Identifying key personality traits, such as sensation seeking, extraversion, and openness that appear to be highly correlated with creative thinking might assist in the identification of ingenious children and the selection of imaginative employees. A more developed understanding of the interaction between cognitive behaviors and personality traits would provide insight into how people interact in a problem-solving environment.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Creativity
Intelligence-Personality Association, Assessment of

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Educational Ability Testing (GRE/MAT/MCAT/LSAT)

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Educational ability testing refers to the capacity of psychological tests to assess samples of students' skills, knowledge, or any cognitive functions or processes. These tests are called ability tests and within the education field they are often referred to as standardized tests. Standardization refers to when all ability tests are administered, scored, and interpreted in an objective and highly regulated manner. These standardized tests are taken under same conditions for every test taker. Within this technique of standardization, scores for students are calculated by comparing them to normative data, which is determined from a group that was used during the developing process of making the test. Raw test scores are transformed into standard scores so that a student will know how they are performing in comparison to others who have taken the exam. The standard scores are strictly based on the distributions of the normal curve and percentile rank. A student's score is now comparable to his or her own overall ability, another student, to a group, or the population (Ross-Kidder, n.d.).

These ability tests are used as tools to evaluate the academic achievement of students, a student's mastery in a specific domain, or the use of particular skill in question. These scores are used to make decisions about awarding scholarships, qualifying for degrees, or determining readiness to proceed to a more advanced level of training (Goslin, 1963). The main purpose of these tests is to help make these decisions as objectively as possible.

Throughout history, psychological tests were used as tools to make decisions about people. Ability testing in the education setting was first introduced during the Middle Ages with the rise of universities in Europe. The tests were used to measure how much knowledge a student retained from what was being taught in school. During this period, degrees earned at a university were used a certification to teach. Oral tests were administered to evaluate the candidates for the degree. However, with the evolution of education, traditional oral tests were widely replaced with paper and pencil tests.

Educational ability testing became the conventional tool for evaluating the conferment of degrees in both Europe and the United States by the nineteenth century. One of the first

waves of ability tests created and used to evaluate elementary students is the Stanford-Binet Intelligence Scale developed by Alfred Binet. His test led to the technique of administering an exam by one examiner to large groups of people at one time, such as military groups. After World War I, group testing had been proven efficient and accurate and intelligence tests were developed to give to high scoring graduates. By the 1920s, the number of ability tests that were being published increased greatly (Urbina, 2014).

Henry Chauncey, a lawyer and educator, developed the Educational Testing Service (ETS), which helped encourage the movement toward the widespread use of standardized testing and assessment in the 1940s. The objective for ETS was to ensure that every student had an equal opportunity to be considered during admissions decisions. Prior to ETS, schools would use a student's class and status when making admissions decisions, rather than a student's knowledge and abilities (Goslin, 1963).

Consequently, educational testing ability became very influential to admissions processes as the number of students in all levels of education began to increase. It was necessary to have ability tests that were standardized. This led to two major branches of educational testing, many of which includes tests that are operated by ETS. The first branch is the standardized achievement tests. These tests had become the primary resource in elementary and secondary education to assess student's skills in arithmetic, reading, spelling, and other subjects. Currently, standardized achievement tests are used in educational environments and have expanded to licensing and certification purposes in the professional realm. The second branch of educational testing is the scholastic aptitude tests. These tests were used by colleges and universities as part of students' applications that determine admission decisions. The most recognized test is the Scholastic Aptitude Test or in short the SAT. Other tests in this branch include the Graduate Record Exam (GRE), Medical College Admission Test (MCAT), Graduate Management Admission Test (GMAT) and the Law School Admission Test (LSAT). While each of these has specific fields that they address, every test has a verbal, quantitative, and reasoning section (Urbina, 2014).

At the present time, ETS is the world's largest private educational testing and measurement organization. They develop, administer, and score tests. The have a process for designing, developing, and administering assessments through an extensive 10-step process (Educational Testing Service, 2016). Additionally, equating procedures are utilized to allow colleges and universities to compare test scores over the years to monitor trends and update norming data.

Currently, colleges and universities typically use educational testing internally. A main purpose for them includes assessing the abilities of incoming students both individually and collectively. One of ETS's most popular tests that many graduate institutions have adopted is the GRE. The most recent form is now the GRE, the revised General Test. The GRE is one of the heaviest weighted components of a student's application for graduate or business school. The format of the test contains a verbal reasoning, quantitative reasoning, and an analytical writing proponent (Educational Testing Service, 2016). The predictive validity of the GRE has been explored since it is such a heavily used tool in the admissions process and it has been found that a combination of both GRE and a student's grade point average is reliable for predicting his or her success in a graduate program. Colleges and universities will, therefore, use these two components together to filter applications (Ingram, 1983).

See Also

Cognition and Personality
Personality and Education

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Emotional Intelligence, Assessment of

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In the early 1990s, Salovey and Mayer initially described the concept of emotional intelligence (EI), which is considered the ability to perceive, access, generate, understand, and regulate emotions so as to enhance emotional, social, and intellectual growth. They proposed that individuals differ in their abilities to effectively utilize emotions, in that some individuals are better able to use emotions to enhance their relationships with others. Theorists often align the concept of EI with theories of general intelligence, such as the classic intelligence models of Gardner, Sternberg, and Wechsler. For instance, Wechsler included in his 1950 conceptualization of intelligence the concept of non-intellectual factors that either facilitate or inhibit intelligence. He did not include EI as a formal construct in his original theory, but he did contend that factors not directly related to intellectual ones should be included in the concept of general intelligence.

In the time since the concept was introduced, EI has exploded, even entering the mainstream. In 1995, Goleman was largely responsible for bringing EI to a broader public audience, making claims that EI could account for the differences between those who excel at their jobs versus those who do not. His conceptualization linked EI with other aspects of personality as well, such as maturity and character. Goleman even described EI as being a better predictor of success than traditional forms of IQ. However, most researchers today contend that both EQ and IQ are important in predicting various aspects of success.

Ability Versus Trait Measures

In its original conceptualization, EI was viewed as a set of interrelated abilities. The ability approach treats EI more like a traditional form of intelligence, based on the notion that it is likely to correlate with cognitive ability tests. The flagship of EI assessment for those who adhere to the ability-based view is the Mayer-Salovey-Caruso scale, which is now in its second version (MSCEIT 2.0). According to Mayer, Caruso, and Salovey (2000), the MSCEIT 2.0 measures four hierarchically ordered EI branches: (1) accurately perceiving and

expressing emotions, (2) using emotions to facilitate thoughts in problem solving, (3) understanding emotion, and (4) managing and regulating emotions. Ability-based assessments are considered objective in nature because the developers have attempted to identify the correct answers to the test items. The objective items on the MSCEIT 2.0 are scored via a consensus technique, in which each test taker's response is scored according to: (a) the consensus response of the judgments of hundreds of others who have answered the same item, and (b) expert consensus consisting of pooled judgments from a group of experts in the field. These two scoring approaches are highly correlated with each other.

Additional ability-based measures are the Situational Test of Emotional Understanding (STEU) and the Situational Test of Emotion Management (STEM) developed by MacCann and Roberts (2008) for the purpose of providing other performance-based ability instruments for use in EI research. They also implemented a scoring method based on theory, rather than consensus. The Boyatzis-Goleman model was inspired by early works of Mayer, Salovey, and Caruso and consists of 20 specific competencies organized into four clusters: self-awareness, self-management, social awareness, and social skills (Boyatzis, Goleman, & Rhee, 2000). The primary measures associated with this model are the Emotional Competence Inventory (ECI) and the Emotional and Social Competence Inventory (ESCI). Both of these scales have multi-rater report measures, which can include self-ratings, but can also have others rate the test taker as well (peers, customers, supervisor, etc.). Another self-report measure used to measure ability-based EI is the Wong and Law Emotional Intelligence Scale (WLEIS), also based on the original Salovey and Mayer model. The WLEIS measures self emotional appraisal, others' emotional appraisal, and use and regulation of emotion (Wong & Law, 2002).

Other theorists, such as Bar-On, have defined EI as a mix of traits (e.g. happiness, self-esteem, optimism, etc.) rather than interrelated abilities. This EI conceptualization, often called the trait, or mixed, approach, includes the assessment of non-cognitive abilities, competencies, and skills, which enable individuals to successfully adjust to the emotional demands of various situations. Bar-On was interested in identifying various traits and skills that people use in their real-life social and emotional encounters. He suggested that EI traits and skills include: (a) the ability to be aware of, and to understand, the self and others, (b) being able to express oneself, (c) being able to control one's impulses, (d) the ability to adapt to change, and (e) the ability to solve social problems. His scale, the Emotional Quotient Inventory (EQ-i), is a trait-based, self-report measure (Bar-On, 1997). It provides an overall EI score and sub-scores in the following areas: intrapersonal skills, interpersonal skills, adaptability, stress management, and general mood. Trait models typically utilize a self-report technique (e.g. I understand my emotions well), relative to the more objective ability-based scoring technique. Other self-report instruments include the Trait Emotional Intelligence Questionnaire (TEIQue) by Mikolajczak, Luminet, Leroy, and Roy (2007) and the popular Self-Report Emotional Intelligence Test (SREIT), which is based on the Mayer, Salovey, and Caruso model (Schutte et al., 1998).

These seemingly discrepant conceptualizations of EI (i.e. ability versus trait) have created some confusion, in that measures of EI seem to assess two different constructs and there does not appear to be a strong association between the ability-based measures and the self-report measures. In addition, some theorists have even criticized the concept of trait-based EI saying that it covers too many different traits.

Emotional Intelligence as a Traditional Intelligence

Of great interest in the study of EI is its relation to traditional forms of intelligence. Whether EI is an actual intelligence has long been debated by numerous theorists. Ability-based proponents argue that EI is a type of intelligence, and therefore the two constructs should be moderately correlated. Mayer, Salovey, Caruso, and Sitarenios (2001) contend that EI does indeed meet the standards to be classified as a traditional form of intelligence. Trait-based measures, however, tend to have weak correlations with traditional measures of intelligence (Saklofske, Austin, & Minski, 2003) and trait-based proponents do not claim that EI is an actual type of intelligence. A number of theorists contend that trait and ability-based EI should be considered as two distinct entities and that the relation between EI and cognitive ability likely depends on the method being used to measure EI.

Emotional Intelligence and Personality

In attempting to understand the mechanisms operating in EI, many researchers have investigated the relationship between EI and different aspects of personality. Various theorists have even suggested that if EI is highly correlated with personality traits, then the EI model may not contribute new information outside of what is already known from the personality research. For instance, Saklofske et al. (2003) contend that the typically large correlations between trait measures of EI and traits from the Big Five Model of Personality show that trait-based EI is so similar to personality theory that it potentially does not add any new knowledge. However, the correlation between ability-based measures and personality is less concerning, given that most studies have revealed small or no correlations. A meta-analysis by Van Rooy, Viswesvaran and Pluta (2005) supports the claim that ability-based EI is distinct from personality. They found that while some self-report measures of EI did correlate with personality measures, ability measures tended to not correlate with personality. Therefore, it appears that whether the measures are correlated with personality depends on the type of measure used.

What Can Emotional Intelligence Predict?

One of the reasons why the topic of EI has become so popular is because of the extensive list of outcomes with which it has been associated. Following is a list of various outcomes that have been potentially predicted by higher ability and/or trait EI scores:

- Success in the workplace, including merit raises, performance evaluations, and workplace morale
- Increased social competence, more successful interpersonal relationships
- Greater well-being, general health, higher ratings of happiness and self-esteem
- Decreased tobacco, drug, and alcohol use
- Lower levels of depression, anxiety, loneliness, and less interpersonal conflict
- Greater achievement and life satisfaction
- Better grades in school and reduced behavior problems.

Gender and Cross-cultural Comparisons

For the ability-based MSCEIT 2.0 scale, women often score higher than men. Several studies utilizing self-report EI measures have also found that women tend to score higher than men. However, other researchers, using similar measures, did not find significant gender differences. To muddy these conclusions even further, some studies utilizing trait measures have found that women tended to score higher in the skills related to feeling and expressing emotions, whereas men tended to score higher in skills related to the handling of emotions and optimism (Bindu & Thomas, 2006). Siegling, Saklofske, Vesely, and Nordstokke (2012) suggest that trait EI is more strongly associated with stereotypically masculine traits, and that ability EI is more strongly associated with feminine traits. They further indicate that this could be especially problematic given that trait measures are self-report in nature, and these types of measures may be especially susceptible to perceptions based on common stereotypes. Correspondingly, a meta-analysis by Joseph and Newman (2010) suggested that gender differences in EI depend primarily on which measure and theoretical approach is used.

When considering cross-cultural comparisons of EI, some research has found that scores on the MSCEIT 2.0 tend to generalize across cultures with similarities found between individuals from collectivist and individualistic samples. However, other research, such as classic studies by Matsumoto, has found that individuals from a more individualistic culture may be better at understanding, expressing, and regulating emotions, relative to those from a more collectivistic culture. Therefore, the conclusions for cultural comparisons in EI are still unclear and require further clarification.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Emotional Intelligence
Emotional Intelligence, Correlates of
Emotional Intelligence in the Workplace
Intelligence-Personality Association, Assessment of
Emotion Regulation and Psychopathology

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Genius, Assessment of

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History

Among the foremost researchers of genius in the modern era is Dr. Dean Keith Simonton. According to Simonton, the term "genius" has been around since ancient mythologies in diverse cultures; ancient Greeks saw genius as a divine nature in every person and this was later adapted by the Romans. Simonton further relates that Western thought dropped the divine characteristic of genius, but retained the innate qualities. Immanuel Kant (1934/1781) and later Francis Galton emphasized in their definition of genius that natural abilities are key, and Galton was among the first to measure the construct of genius. Simonton indicates that Galton also notes that along with mental abilities persistence and passion are important, whereas for Kant originality and creativity mattered. Simonton sees that each of these components are part of genius.

Intelligence Tests

A history of intelligence testing as presented by Shultz and Shultz reveals that the first test to measure cognitive ability as it is understood today was developed by Alfred Binet and Theodore Simon who believed that mental ability measures should include problem solving, memory, attention, and imagination. This basic formula was then adapted by Lewis Terman in 1916 as he developed the Stanford-Binet intelligence test. The Stanford-Binet produced an intelligence quotient (IQ) based on an individual's mental age (as computed by the test) divided by that individual's chronological age. The Stanford-Binet and its subsequent adaptations assess intelligence over a variety of cognitive abilities including fluid reasoning, verbal and quantitative reasoning, spatial processing, and working memory for children ages 4–10. In relation to genius, it was the developer of the Stanford-Binet, Lewis Terman, who first linked IQ scores with the term. Currently

scholars and practitioners indicate that the fifth edition of the Stanford-Binet Intelligence Scales is considered useful in detecting "genius" level intelligence as it is considered to have a high ceiling.

The Wechsler Adult Intelligence Scale (WAIS) is another psychological assessment instrument that seeks to gauge an individual's intelligence. There are important differences in the WAIS from the Stanford-Binet. In his review of the WAIS, Silva (2008) explains that the WAIS provides subjects multiple IQ scores including full-scale IQ (FIQ), performance IQ (PIQ), and verbal IQ (VIQ). Furthermore, the WAIS no longer relied on the Stanford-Binet method of acquiring IQ scores by dividing mental age by chronological age; instead, the scores on these measures were based on an individual's performance based in comparison to established norms ($M = 100$, $SD = 15$) acquired by a large sample of scores from individuals in a particular age range. The WAIS does not specify a cutoff for genius, but gifted is 130 and above. Tests such as Stanford-Binet and WAIS have been criticized by Howard Gardner and Robert Sternberg, who argue they are too narrow and argue for multiple intelligences.

In support of Gardner and Sternberg are findings from the famous genius project led by Lewis Terman. Terman followed the lives of children who had scored over 140 on the Stanford-Binet, putting them at the very highest percentage (1%) of people in terms of intelligence. However, a follow-up analysis of children acquiring "genius" status by psychological researcher Feldman (1984) indicated that though individuals with high IQs were able to more easily thrive in academic endeavors and were generally well-adjusted throughout adulthood, the likelihood of achieving excellence or distinction in a particular field was not as predicted. While the Stanford-Binet focused on assessing the cognitive abilities of children, other intelligence tests include the Weschler Adult Intelligence Test and the Raven's Progressive Matrices; however, no single intelligence test has ever reliably been established as an accurate assessment of genius.

Historiometric Measurement of Genius

Dean Simonton believes an even more reliable measurement of genius is looking at historiometric ways of assessment. Simonton defines genius as mastery over a certain domain that distinguishes someone from all others. Therefore, Simonton believes the best way to measure this is through extraordinary products that are creative, novel, and valuable to society. Simonton has noted that above average intelligence is associated with such extraordinary products and support for this measure of genius are seen in the works of Leonardo Da Vinci, Benjamin Franklin, Galileo and others who produced extraordinary works in multiple areas.

Important to the development of such original and extraordinary products is creativity. Tests of divergent ability have been one way to test creativity. Kubin and colleagues noted that the lack of high achievement in Terman's "Termites" was attributed to a lack of creativity. Simonton states that personality traits can also measure creativity and could be assessed by personality inventories (e.g. MMPI).

Brain Functioning

New approaches to examining intelligence include studying the brain and its role in intelligence. An interesting and related finding by Witelson, Kigar, and Harvey (1999) is the high amounts of idiosyncratic axonal connectivity found in the post-mortem brain of Einstein. Studies have indicated that gray and white matter in the brain may influence intelligence. Intelligence tests have shown correlations with both gray and white matter, with the latter related to deftness in sharing of information across different brain regions as revealed in research by Colom and colleagues (2010). Many researchers in the field have related that intelligence has been linked with the brain's ability to communicate effectively and efficiently via dense neural networks. Deary and colleagues (2010) bring attention to the fact that this efficient processing conception of intelligence provides a basis for the concept of general intelligence (*g*) in that those who are intelligent in one area tend to be intelligent in another perhaps because of efficiency in processing.

Considerations of Social Class, Gender, Race

Since the conception of genius, there has been consideration about the role of genes (nature) and environment on intelligence and, since the measurement of genius, the role of bias in measures in regard to social class, race, and gender. An article by Nisbett (2012) and colleagues in the *American Psychologist* (AP) reported that intelligence is influenced by genes and environment, and suggested that impoverished environments appear to limit the development of a person's intelligence. They provided evidence suggesting that disadvantaged populations can increase their intelligence through intervention. Studies have shown intelligence was similar for men and women in overall IQ scores, but the AP report indicated visual and spatial tasks were performed better by men and tasks involving verbal skills and perceptual skills were performed better by women. Evidence also suggests that girls and women suffer from social biases with regard to intelligence. For example, Bianco, Harris, Garrison-Wade, and Leech (2011) reported findings that suggest that teachers are less likely to recommend girls to gifted programs than boys. Studies have shown that stereotype threat influences racial and gender differences in standardized tests.

Future Directions

The future of genius research is likely connected to the future of intelligence research. Therefore, studies are likely to continue to investigate the role of the brain and its connection with IQ and genius, particularly if there are parts of the brain related to different intelligences. In addition, the theory of multiple intelligences as well as the role of culture in genius will likely be investigated. Future studies may also investigate how genius might be enhanced through medication, psychological, and even through technological interventions.

See Also

Culture Free/Fair Intelligence Test
Educational Ability Testing (Educational Ability Testing (GRE/MAT/MCAT/LSAT))
Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

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Mental Competency, Assessment of

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Competence and Capacity: Definitions and Implications

Mental capacity, historically considered to be a core personality dimension vulnerable to disruption by mental illness (Moye, Marson, & Edelstein, 2013), is today viewed as a complex cognitive entity influenced by values, emotion, interpersonal relationships, and spirituality. Capacity was recently defined as: "...a professional clinical judgment as to whether an individual has the requisite minimal ability to successfully carry out a specific task (e.g. drive a car) or make a specific decision (e.g. refuse a medical treatment)" (Moye et. al., 2013; p. 3). The assessment of mental capacity has followed a similar trajectory from a simple unitary construct to a multifaceted, context-dependent ability set. Over the past 20 years, the distinction between capacity and competence has become blurred. Historically, "capacity" referred to the psychological domain of decision-making ability and judgment while "competence" referred to the legal determination that an individual was of "sound mind." However, this distinction has become less clear with civil courts now using the term "capacity" and psychologists referring to "capacity" and "competence" as essentially synonymous.

In contrast to other personality and cognitive dimensions, mental capacity has strong ties to state, federal and case law. Many of the formal capacity assessment measures were based upon or influenced by legal or applied ethical questions. An underlying reason for this ethical-legal dimension is that the findings of capacity assessments may lead to significant restrictions of individual autonomy such as being subjected to unwanted and invasive medical treatment, liberty-restricting psychiatric interventions, loss of control over personal finances, and the inability to drive or live independently

One issue on which there is clear agreement is that capacity is domain-specific. Global capacity determinations ("Does this patient have adequate capacity?" or "Is this patient competent?") are too broad to be legally, clinically, or practically useful. Specific capacities include medical decision-making, research participation, testamentary capability (making a will), financial management, parenting, and independent living These seemingly specific

domains have been further subdivided –for example, an individual in a relatively early stage of Alzheimer's disease may have the ability to manage a monthly spending allowance but not to make investment decisions.

Dimensions of Capacity

State statutes have outlined capacity parameters that have guided the development of clinical assessment strategies. Specific diagnoses such as aging-related neurocognitive disorders and schizophrenia, by themselves, are not an adequate basis for determining incompetence.

The initial dimension, *Communicating a Clear Choice*, typically becomes an issue when a patient either does not verbally communicate or a decision is not consistently communicated. This ability is a "threshold" criterion (Grisso & Appelbaum, 1998). If a consistent choice cannot be conveyed, such as when an individual repeatedly reverses a decision, incapacity is assumed. Under these circumstances, it is highly unlikely that the individual will be able to demonstrate the higher levels of reasoning associated with the other functional dimensions discussed below.

Understanding Relevant Information is not synonymous with short-term recall. An individual may be able to restate a description provided by a clinician or investigator but not be able to grasp its meaning. A useful informal strategy for assessing understanding is to ask the subject to describe the information previously provided in their own words. This dimension may also include knowledge of alternatives to proposed treatments or legal documents (e.g. living will versus durable power of attorney).

Appreciation reflects the ability to grasp information and apply it to one's own specific life circumstances. For example, in making judgments about testamentary capacity, individuals should demonstrate awareness of their own financial resources and property as well as the necessity of disposing of both upon the individual's death. In cases of a request for physician-assisted suicide, the patient should demonstrate a realistic understanding of their illness and its course as well as a recognition that death is irreversible and demonstrate awareness of relevant legal issues.

Reasoning requires active manipulation of the relevant information to arrive at a final decision. The process of decision-making is more important than the final choice itself. Patients may make decisions that may be unpopular with friends and relatives or that seem "irrational." However, the absence of external support for a particular decision does not mean that the patient's reasoning is automatically questionable. With respect to treatment options, including physician-assisted suicide or the choice to forego a treatment that might prolong the life of a terminally ill patient, the baseline requirement would be that the patient had an adequate comprehension of their condition and its prognosis with and without treatment.

Among mildly cognitively impaired elderly persons who wish to continue to drive, *Appreciation* and *Reasoning* would be met by the demonstrated ability to understand, in the abstract, the limitations that impaired short-term memory and concentration place on safe driving and then apply that information to their own particular condition (impaired sight, hearing, memory, etc.) and include this personally relevant information in their decision.

A patient who requests a formal driving evaluation or who discusses possible limitations to driving (e.g. only in daylight hours and driving restricted to two locations less than three miles from their home) would meet this standard. An elderly person who completely denied the possibility of driving-related sensory and cognitive limitations associated with aging would fail to meet criteria of adequate *Appreciation* and *Reasoning*.

The description above emphasizes features such as attention, concentration, memory and reasoning. However, many treatment or independent living decisions are based on non-cognitive factors such as emotion, religious beliefs, family dynamics, or cultural norms. It is well established that many seriously ill patients may prefer not to make medical treatment decisions and because of cultural norms that de-emphasize individual autonomy, choose to defer these judgments to close family members and/or the physician. In the context of adequate cognitive functioning, a choice to avoid receiving informed consent information related to medical treatment should generally be accepted.

Clinical Conditions Associated with Impaired Capacity

In terms of neuropsychological functions, reasoning, short-term memory, verbal knowledge and receptive language are most strongly associated with decision-making capacity by the middle stages of the illness. Alzheimer's disease (Appelbaum, 2007) and conditions such as Lewy body dementia, are likely to impair competence-related cognitive skills. Patients in the earlier stages of these illnesses and those with mild cognitive impairment (MCI) are likely to present a more ambiguous picture warranting detailed assessment. Delirium, associated with severe disruptions in consciousness, impairs attention and concentration to the extent that "holding" information in immediate memory to consider its implication, is often not possible. However, delirium is also frequently reversible and capacity questions should be deferred until the cause is addressed. Schizophrenia – particularly in its acute stage – is frequently associated with impaired capacity; bipolar mania often has similar effects (Appelbaum, 2007). The absence of insight into one's psychiatric illness will nearly always prevent individuals from meeting the *Appreciation* and *Reasoning* standards.

However, research suggests that diagnosis and functional abilities may be, at best, only moderately related. In addition to assessing clinical conditions, it is also important to consider the demands of the decision-making context and the consequences of the decision. For example, while someone with mild intellectual disability may not be able to provide an informed decision about the risks and benefits of cardiac bypass surgery, they may well be able to decide between two nursing home options. Additionally, as in the case of delirium, capacity may be fluctuating and periodic reassessment may be in order. This is particularly true with patients who have acute psychiatric illnesses or are confused due to systemic medical illness and or medication side effects.

Instruments for Capacity Assessment

Among formal, psychometrically sound assessment tools, the most widely used clinical measure in medical and psychiatric settings for assessing capacity for independent living,

and medical decision-making, is the Mini Mental State Exam (MMSE) developed by Folstein and colleagues. Composed of questions assessing immediate and short-term recall, attention and concentration, numerical computation, language expression and comprehension as well as visuopractic abilities, the MMSE has established overall norms as well as age- and education-specific norms. With a total of 30 possible points and a standard cut off score of below 24 indicating impairment, persons with high scores have been found to have intact medical decisional capacity with scores below 20 typically indicating impairment. Despite its efficiency in assessing a range of basic cognitive functions, the MMSE has several limitations. Scores between 20 and 24 do not clearly indicate the presence or absence of capacity. Additionally, the MMSE does not directly address the core dimensions involved in medical treatment choices, testamentary abilities, or one's ability to live independently.

Two scales developed for use in primary health care settings assess patients' knowledge of the elements of informed consent for medical treatment. The Hopkins Competency Assessment Test (HCAT; Janofsky, McCarthy & Folstein, 1992) has three versions based upon reading level (grades 6, 8, or 13). After reading four paragraphs describing the dimensions of informed consent, information about how clinical conditions could disrupt decision-making and advance directives, the patient then takes a brief quiz covering the material. While the HCAT asks generic questions, the Aid to Capacity Evaluation (ACE; Etchells, Darzin, Silberfeld, et al., 1999) is a template of questions – the content is filled in based on the patient's specific medical condition or the treatment decision being faced. Questions reflect the basic elements of informed consent, possible consequences of the patient's decision and how psychiatric disorders could influence decision-making.

Capacity for independent living has been evaluated with several standardized scales. The Independent Living Scale (ILS), administered in a structured interview format, has five subscales –Memory Orientation, Managing Money, Managing Home and Transportation, Health and Safety, and Social Adjustment. ILS performance has been found to differentiate persons with schizophrenia requiring different levels of supervision for community living. While the ILS is administered directly to the patient, the Bristol Activities of Daily Living Scale (BADLS; Bucks, Ashworth, Wilcock, & Siegfried, 1996) questions the caregiver. Each item is rated on a scale from 0–2 depending on the level of assistance required for a specific task. Dimensions include self-care such as bathing, dressing, and hygiene as well as housework, finances and transport. In a sample of home dwelling individuals with dementia, the BADLS was found to be significantly and strongly correlated with the MMSE.

Capacity for consent to participate in clinical research has also been the focus of multiple assessment instruments. The Deaconess Informed Consent Comprehension Test (DICCT) was developed to assess subjects' understanding of their participation in clinical drug trials. In contrast to assessing the elements of informed consent for treatment, the DICCT includes questions specific to research such as the possibility of receiving a placebo and the distinction between individualized treatment and investigating new medications without clearly established efficacy. The DICCT is in a template format so that specific medications, their side effects, etc., can be inserted. In initial research, it was found that the average score was 70% with study participants over-estimating their understanding of the trial; medication side effect information was least likely to be retained (Miller, et al., 1996).

See Also

Cognitive Aging, Assessment of
Personality and Aging

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The Wechsler Memory Scale (WMS-IV)

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The Wechsler Memory Scale (WMS-IV) (2009) is a test that is designed to evaluate auditory, visual, and working memory in people 16–90 years old. There are numerous psychiatric and neurological conditions for which memory impairment is a key symptom, and memory also has a strong influence on our social interactions and daily behavior. Thus, assessment of memory is an important aspect of understanding ourselves and others and the WMS-IV is the most valid, reliable, and comprehensive test available for this today though it has been updated over time, as our knowledge about the nature of memory has grown.

David Wechsler (1945) developed the original version of the test after noting that assessment of memory capability was often part of the psychological evaluation in mental hospitals. His stated goal in was to provide a test that allowed "rapid, simple, and practical memory evaluation" (Wechsler, 1945). This original version of the test included seven subtests: a visual memory subtest, several auditory memory measures, and what would now be considered simple attention tasks such as counting by threes. It took 15–30 minutes to administer and resulted in a single score called the memory quotient. An individual's memory quotient could be compared to normative data that Wechsler derived from 200 patients between the ages of 20–50 at Bellevue hospital. For people outside of this age range, normative comparisons could be extrapolated.

The original version was widely criticized. One criticism was that the sample from which the norms were developed was inadequate and many felt the nature of memory made it inappropriate to extrapolate norms for older and younger patients. Critics also believed that the test placed too much emphasis on verbal material and made it difficult to differentiate between visual memory and visuomotor difficulties. Many psychologists also felt that the single memory quotient score did not capture the true nature and complexity of memory functioning. Nevertheless, this version was extensively used for clinical practice and research and was even translated into other languages, highlighting the strong need that existed for a tool to evaluate memory.

During the 1960s and 1970s, our understanding about the nature of memory expanded which brought further questions about the way the test was designed. Specifically, new

research showed several subcomponents of memory such as verbal and visual memory and suggested the different types were localized to different parts of the brain. An increasing number of studies also showed evidence of both an immediate and a long-term memory. Given this, Elbert Russell, a neuropsychologist working within the Veterans Administration System, argued that a test was needed to assess these different aspects of memory in order to improve the ability to evaluate the impact of brain damage. Russell developed a new test he titled the Wechsler Memory Scale, Revised (WMS-R; Russell, 1975) and included two of the original subtests, a story recall, and a visual recall of information drawn by the examinee. He also added a "delay condition" to each task which involved assessment of the amount of information retained after 30 minutes spent engaged in distracting activities. Normative data for this version was gathered from 75 patients with brain damage and 30 controls without brain damage. Russell's version was lauded for its ability to differentiate between verbal and visual memory and for having the delay condition. There were concerns, however, about the psychometric properties and criticism about the normative sample since it primarily consisted of brain damaged males. Nonetheless, Russell's WMS-R remained popular and was frequently used until 1987 when another version of Wechsler's test was published.

The publisher used the title, "Wechsler Memory Scale, Revised" for their first revision of Wechsler's scale which led to confusion since Russell's version had the same title; it was sometimes unclear in the literature which test was being referred to. However, Russell did not produce additional versions and, over time, Wechsler's tests gained popularity and eventually became the standard in assessment of memory. This popularity began with Wechsler's WMS-R which included more subtests, delayed memory conditions, and an expanded normative population.

The normative data for Wechsler's second edition was gathered from 316 people aged 16–74 and the sample was closely aligned with the census data of 1980 in terms of diversity. It included eight subtests including delayed recall measures as well as more tests that assessed visual memory and a test of concentration. Changes were also made to the scoring system to offer more precise criteria and to allow for computation of scores for each aspect of memory rather than a singular memory quotient; this improved the reliability of the test across examiners. Concerns were noted about this version; for instance several of the visual memory tasks appeared to require multiple cognitive abilities and some were noted to assess attention rather than vision. The test also did not easily differentiate people at the extreme ends of the scoring continuum, suggesting the test may not have been able to fully capture how high or low some individuals could have scored. Critics also noted that the test had no way to assess recognition memory. Nevertheless, the test was the most comprehensive assessment of memory available and was used widely for the next 10 years.

The advice of users was sought in developing the third edition of the Wechsler Memory Scale, the WMS-III, which was published in 1997. This version included six subtests that took approximately 45 minutes to administer as well as several optional tests the examiner could use when additional information was needed. The scoring system continued to advance, allowing for computation of overall memory, immediate and delayed memory, working memory, and recognition for both auditory and visual content. In addition, you could compute scores that measured learning slope and the amount of information retained from an initial trial. Scores could be interpreted by comparing them to normative data

gathered from over 1,000 people who ranged in age from 16–89. The normative sample for the WMS-III was also the sample used for the third edition of the Wechsler Scale of Intelligence, allowing for comparison of different cognitive abilities. This version was praised for its increased reliability, inclusion of subtests that allowed for differentiation between psychomotor and visual memory difficulties, as well as the addition of more visual memory tasks. The ability to assess recognition improved treatment planning by distinguishing between encoding and retrieval impairment.

Weaknesses in the third version emerged through extensive use of the test as well as knowledge of the brain based on new technology. One of the visual subtests was sensitive to people with social perception impairments but did not adequately assess visual memory in other people. Another visual subtest was often confusing to older adults and appeared biased against certain cultural groups. The norms were also criticized as questions arose about fatigue since the sample was taking both the WMS and the WAIS. There were also concerns that the sample contained people with undiagnosed dementia, reducing the sensitivity of the test to detect memory impairment. An abbreviated edition, WMS-IIIA, was released in 2002 to decrease testing time; however the content and related concerns were the same, so it was not widely adopted.

The development of the Wechsler Memory Scale-IV (WMS-IV) was the most detailed and comprehensive to date. It was informed by surveys of users and a panel of memory assessment experts and included reviews of the psychometric properties and content. WMS-IV includes seven subtests for individuals ages 16–69 and a five-subtest version for ages 65–90. The normative sample included 1,400 people pre-screened for average IQ and no cognitive impairment; additionally, each age group was fully sampled and representative of the population in age, sex, race/ethnicity, education level, and geographic region. The WMS-IV has improved validity and reliability, reduced ability of examinees to guess correct answers, and an improved ceiling and floor for each subtest. Its visual subtests require processing of both spatial and detail elements as brain studies have revealed each is processed differently. All subtests were designed to be fair across cultural groups. Scores that can be generated from the WMS-IV include index scores for auditory, visual, visual working, immediate, and delayed memory; each index score is composed of at least two subtests. The WMS-IV also provides contrast scores which allow the examiner to obtain information about performance in one area adjusted for performance in another area. The WMS-IV works with the WAIS-IV to allow for a full assessment of all cognitive abilities that might influence memory. The WMS-IV has been widely accepted and used frequently in research and clinical settings alike, thus maintaining its status as the best tool for evaluation of memory.

The evaluation of memory is extremely important for conditions like schizophrenia, major depressive disorder, dissociative disorders, posttraumatic stress disorder, and learning disorders all of which include disruption of memory as a criterion. Differentiation between similar medical conditions, such as different types of dementia, also requires assessment of memory to determine the pattern of memory impairment and subsequent appropriate treatment. Evaluation of memory is also important after traumatic brain injury and demyelinating conditions as it impacts driving ability, financial management, and other independent living issues. For people without a disorder or illness, memory is still an important factor in daily lives. For instance, memory impacts what we recall after a social encounter which influences what we think about others, our decisions about whether we

want to interact with someone again, and our behaviors when we interact with the same person again. Overall, memory assessment is a valuable tool and the WMS-IV is the most comprehensive tool available for this. It is likely to continue to evolve as our understanding of the brain and memory continues to grow.

See Also

Cognitive Aging, Assessment of
David Wechsler
Reliability, Issues of
Validity, Issues of
Wechsler Adult Intelligence Scale-IV (WAIS-IV)

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Anne Anastasi

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Brief Overview

Anne Anastasi was born in Manhattan, New York in 1908. She was raised in an uncommon family – both in structure and convention. Her family was a first-generation Sicilian family that prized education but spurned most of their neighbors, viewing them as beneath their standing. This shaped Anne to become an ambitious yet independent scholar, albeit with a tendency to being absent-minded and possessing gaps in the area of common knowledge (such as not putting metal letter openers in electrical outlets). By the 1950s, Anne Anastasi was a well-known expert in the field of assessment and psychometrics. Her wide-ranging research encompassed the psychological aspects of creativity, statistical issues, basic research and techniques, trait formation, and individual differences, as well as the misuse of tests and culture fairness in testing. To this day she is referred to as the "Test Guru," and significantly impacted the field's understanding of psychological testing. During her lifetime, Anastasi published more than 150 scholarly books, monographs, and articles. Her books became classics and are still extensively used throughout the world. In addition to *Differential Psychology and Psychological Testing*, Anastasi's other major publications included *Fields of Applied Psychology* (1964); *Individual Differences* (1965); *Testing Problems in Perspective* (1966); and *The Gap between Experimental and Psychometric Orientation* (1991). Just a few of her honors include that she was president of the American Psychological Association (APA) and was awarded multiple honorary degrees as well as the National Medal of Science by President Reagan. She is possibly the most prominent woman in psychology during the latter half of the twentieth century.

Her Early Years

The family she was born into and the way that she was raised had a significant impact on Anne's development, interests, and personality. To understand Anne, it is helpful to get a

sense of what her early years and her family of origin were like. In 1904, Teresa Gaudiosi, who was then about 19, immigrated from Sicily to Manhattan, New York along with her mother, Maria, and her younger brother, Pasquale. They were an educated family, and Maria held her family somewhat apart and superior to those that lived around them, stating that they were "surrounded by peasants." A few years after their arrival, on August 22, 1907, Teresa, who worked as a teacher at the time, married Antonino Anastasi, who worked for the New York City Board of Education as a Truant Officer. It was into this context that Anne Anastasi was born on December 19, 1908. However, Anne was to never know her father or her father's family. Antonino died just a year after Anne was born, on January 6, 1910. Following his death, Teresa became estranged from Antonino's family of origin whereby Anne never did know that part of her heritage. While at this time it was unusual for a woman to raise a child without the support of a father, Teresa did so by being a part of an uncommon family configuration – her maternal grandmother was the matriarch, her mother was the family bread winner, and her maternal uncle was her father figure. It is these three individuals who shaped the direction of Anne's life.

While Teresa Anastasi and Pasquale Gaudiosi were highly educated, that education focused on the classics and humanities, and they were not prepared for self-sufficiency. Still, she was a resourceful and determined woman. Teresa's first attempt at providing for the family financially was when she taught herself bookkeeping. She and Pasquale then founded a piano company. When this endeavor eventually failed, Teresa held various other jobs until she finally landed a position as office manager for one of the largest foreign newspapers in the New York City area, *Il progresso Italo-Americano*. She held this position until she retired. Although Teresa was very focused on providing financially for the unique family, she never failed to give Anne the love and attention she wanted. Regardless of how tired Teresa was, she always took time to play role-play games and word games with Anne.

While Teresa provided financially, and Pasquale offered Anne a positive male role model, it was matriarch Maria that took charge of Anne's education. She limited Anne's contact with other children and considered them boisterous and socially beneath the Gaudiosi family. She provided her with a strong education balanced by a broad range of academics and sprinkling in experiences from her own girlhood. Their study sessions were interactive and Anne found them exciting and glamorous. A public school teacher, Dora Ireland, was also hired to provide Anne with lessons every afternoon. Dora encouraged Maria to send Anne to public school, but these suggestions were ignored for the first several years. When Anne was nine, Dora's pleas were finally heard. Anne was to attend third grade in a public school, provided it was the school where Dora worked, and Dora was to escort Anne to and from school every day.

Unfortunately, this experience was not one of the most positive moments of Anne's life. In only two months she was skipped to fourth grade. This caused a variety of problems to arise when Anne was given a seat at the back of the classroom. She was not only somewhat overwhelmed by the crowed and noisy conditions of her classroom, but on top of this, it was discovered that Anne was having difficulty seeing the board. Once it was determined that Anne required glasses, she resumed studies at home and did not return to school until the next fall when she entered the sixth grade at a school in the Bronx. At the end of that year, 11-year- old Anne graduated sixth grade from P.S. 33 at the top of her class and began the accumulation of her many awards with a gold medal for academic excellence.

   The following fall, Anne entered Evander Childs High School but quickly became dissatisfied. The school was again overcrowded, and Anne felt that she was not being intellectually challenged. At the suggestion of a friend, Anne dropped out of high school and attended Rhodes Preparatory School in Manhattan (which was primarily attended by adults preparing to enter college) for two years. At the age of 15, Anne entered Barnard College.

   Anne was very interested in mathematics, having taught herself spherical trigonometry as a teen, and so when she initially enrolled at Barnard, she intended to major in math. However, as a sophomore, she attended a psychology class taught by Harry Hollingworth and read an article on correlation coefficients authored by Charles Spearman, resulting in her shifting focus to psychology. Spearman's work had allowed Anne to realize that she could pursue psychology while not abandoning her love for math. During her junior year, Anne was a student in the psychology honors program and attended graduate courses at Columbia University. It was during this time, when Anne was 18 to 19 years old, that she co-authored her first journal article on aesthetic preferences (Lund & Anastasi, 1928). In 1928, Anne Marie Anastasi earned her Bachelor of Arts from Barnard College. At graduation, Anne was elected to Phi Beta Kappa, and earned the prestigious Caroline Duror Memorial Graduate Fellowship that was awarded each year for the graduate showing the most promise for distinction in her chosen field. (This was an annual award of $600, which would be valued at over $8,000 today.) In the fall of 1928, Anne entered Columbia University and proceeded directly to the PhD track as she had already taken a number of graduate classes in psychology, thus bypassing the need to first earn her Master's degree. She completed her graduate work in the field of differential psychology – the area of study that explores individual and group differences in behavior – and received her PhD in 1930.

   The summer following her graduation from Barnard, Anne went on to enroll in a summer class with Dr. A. T. Poffenberger, who was head of the Department of Psychology at Columbia University. She followed this with courses during her first year with several significant psychologists. Among these notable psychologists was Robert Woodworth, who wrote a text titled *Experimental Psychology*. This text was highly influential and was called the Columbia Bible, with some scholars viewing it as the Bible for North American psychology. Carl Warden was also influential in Anne's education. He is best known for his work on comparative psychology and his texts, such as *Evolution of Human Behavior* (1932) and *The Emergence of Human Society* (1936). Gardner Murphy is another among the significant figures of Anastasi's professional education. Murphy is probably best known for his experiments in the field of parapsychology and the development of his biosocial theory of personality. He contributed much to our understanding of learning, comparative, and physiological psychology. H. E. Garrett (who later was to become her dissertation mentor) was one of the most prominent of the era's segregation psychologists. He also contributed significantly to the field with his text on experimental psychology and his work regarding statistics in psychology and education. This was the focus that Anne had pursued since she read Spearman's article on correlation coefficients. It was during this time, referred to as the "Golden Years" of Columbia University's psychology department, that Anne began her professional studies.

   In her oral history, Anne describes the summer of 1929 as pivotal in her career development. During this summer there were three unrelated but highly memorable events. First,

Anne received a summer research assistantship with Charles B. Davenport. While at the Carnegie Institution of Washington in Cold Harbor on Long Island, Anne assisted Dr. Davenport in creating culture-free tests. The second major event was taking courses with and the establishment of lifelong friendships with Clark Hull and R. M. Elliot. Finally, it was during this summer that Anne attended the International Congress of Psychology at Yale which was the first to be held in the United States (Fish, 1983).

Her second year of graduate school was filled with courses for her specialization. Otto Klineberg had just returned from Europe where he had been gathering comparative data on test performance. It was with him that Anne studied racial differences. She also took a course at Randall's Island Children's Hospital on intelligence testing. Anne also enrolled in courses at Columbia Medical Center and College of Physicians and Surgeons in the areas of neuroanatomy and neurophysiology. She also time spent on completing her dissertation on a group factor identified in immediate memory for rote learning (Anastasi, 1930).

Marriage and Career

During graduate school she also met John Porrter Foley, Jr., a fellow Psychology PhD student at Columbia University. Foley was known for his early work on conditioned responses in primates and abnormal behavior in humans. Later, he became known for his work in industrial psychology. Foley's work also included collaborations on testing research with his wife. While Foley's and Anastasi's interest in psychology was shared, their collaboration in Foley's experiences and interests influenced and broadened Anne's thinking, particularly in the areas of animal and comparative psychology. His work with J. R. Kantor (known for the development of interbehaviorism – a naturalistic system in psychology) and Franz Boas (an anthropologist) as well as his increasing interest in the area of industrial psychology also had an influence on Dr. Anastasi. On July 26, 1933, Anne Anastasi and John Porter Foley, Jr. married following a courtship that began while they were both pursuing their PhDs in Psychology from Columbia University. Anne was said to have noted that her marriage gave her the benefit of two psychology PhDs.

About a year after her marriage to Foley, Anne was diagnosed with cervical cancer. While radium therapy eradicated the cancer, it also destroyed her chances of bearing children. However, Anne felt that this was at least partially responsible for her academic and career success as it allowed her to remain childless without having to suffer conflict or guilt about her state. A lifelong friend of Anastasi, Agnes N. O'Connell (2002), quotes Anne as saying, "response to misfortune can vary from self-pity, depression, and even suicide, to enhanced motivation and a determination to show the world that it can't keep you down." Anne clearly chose the route of enhanced motivation.

Because universities were reluctant to hire husband and wife for the same department, Anastasi taught at Bernard College, while Foley taught at George Washington University in Washington DC. As a result, the early years of their marriage were characterized by distance and long hours of travel. Eventually, Foley obtained a position with the Psychological Corporation in New York City, and the couple were able to remain together thereafter.

Anne began at Bernard College in 1930 as an instructor of psychology and earned $2,400 that first year. This would be about $32,700 at today's value. In 1939, Anne moved to Queen's College of the City University of New York. She served there as assistant professor and department chair until 1946 when two-thirds of the department, including Anne, left due to difficulties in being allowed to teach and research.

In 1946, Anne found her final academic home at Fordham University, in the Bronx, with the Graduate School of Arts and Sciences. She was made associate professor in 1947 and full professor in 1951. Anastasi served as department chair from 1968–1974. She retired from there in 1979 when she became professor emeritus. She continued to be active professionally until her death in 2001.

Major Contributions and Achievements

Anne was noted for both her brilliance and her absentmindedness. She had multiple major publications, was an exceptional teacher and mentor, yet was distracted by the more practical side of life. In *The New York Times* obituary, Erica Goode reported a quote from Dr. Mary Procidano (the current chair). "Once, Dr. Procidano said, she heard a shriek coming from Dr. Anastasi's office. Running to see what was wrong, she found Dr. Anastasi trying to pry a plug out of an electrical outlet by using a metal letter opener. When Dr. Procidano asked her if she got a shock, with the letter opener still in her hand, Anastasi replied, saying 'How fascinating. How did you know it was a shock?'"

Among Anastasi's professional honors she received the APA Distinguished Scientific Award in 1971, the Recipient award for distinguished service to measurement from the Educational Testing Service (ETS) in 1977, was recognized for distinguished contribution to research by the American Educational Research Association in 1983, the APA E. L. Thorndike Medal in 1983, the Gold Medal for lifetime achievement from the American Psychological Foundation in 1984, and the James McKeen Cattell fellow of the American Psychological Society in 1993.

She also held several leadership roles. In 1946 she was elected to the presidency of the Eastern Psychological Association and later served both the Psychonomic Society and the APA on the board of directors, in addition to her role as APA president. Anastasi received honorary doctorates from La Salle University in Philadelphia, the University of Windsor, Canada, Villanova University, Cedar Crest College, and Fordham. She was a member of the honor societies of Phi Beta Kappa and Sigma Xi. In the Spring 1987 issue of *Psychotherapy in Private Practice* Eileen A. Gavin reported the findings of a study of the world's most prominent women psychologists. Anne was first among 84 possible choices.

Research

While Anastasi's research followed a number of major themes, with a major contributing focus on the nature and measurement of psychological traits, the range of her individual papers is astonishingly wide. Among the other research topics she engaged in was language development among black and Puerto Rican children, published in 1950. She carried this

general theme of the effect of experience on traits into publications on intelligence and family size, age changes in adult test performance, and attitude differences between males and females. A further focus on her writing and research has been test construction, evaluation, and interpretation, ranging from conceptual and statistical questions to misuse and misinterpretation. Many of these continue to be issues today.

Being known as the "Test Guru," she also had a number of written publications on different types of test issues including test bias, speeded tests, item selection, coaching for tests, culture-free, and culture-fair tests. In addition, with her husband, she contributed to various psychological aspects of art. They studied cultural differences in artistic expression, abnormality of art, art by adult psychotics, and the appropriateness of projective tests such as Draw-a-Person and House-Tree-Person in clinical assessment. Some of Anastasi's isolated studies included the effect of shape on the estimation of area, methodological controls of the diary method, a study of fear and anger among college students, a factor analysis on the performance of dogs on learning tests, and a case study of a musically gifted "Idiot savant."

Heredity and Environment

The basic premise of all of Anastasi's experimental and theoretical work was that human beings, for a variety of reasons, were different from one another. In the preface to her 1937 premiere text, Anne states, "Man has always been aware of differences among his fellow-beings. He has, to be sure, entertained various theories, beliefs, or superstitions regarding the causes of such differences, and has interpreted them differently according to his own traditional background, but has at all times accepted the fact of their existence." From this foundational concept, Anne influenced generations of professionals in their approach to testing methods.

In 1957, as part of a presidential address to the APA, Anastasi noted that the heredity/environment controversy (also known as nature versus nature), while generally accepted as settled, could not be resolved on the basis of current research, which she felt was decidedly inconclusive. Instead, Anne presented what she felt was a more viable hypothesis: that heredity and environment were not additive factors in determining character, but instead personality was more likely the result of the interaction of the two components.

As early as her first book in 1937, Anastasi had identified two myths upon which much of the understanding of that time was based: (1) inheritance is indicated only by resemblance to parents or immediate ancestors, and (2) hereditary factors that influence structure mean a particular behavior will occur. Anne recognized that individuals often bore resemblance, both physically and characteristically, to extended family (such as a child bearing the same red hair that was last manifested by a great-grandparent). She also recognized that while certain physical characteristics, such as long legs, may aid in becoming a talented hurdler, the presence of long legs in and of itself will not result in that outcome. Anastasi, always looking to research data, recognized at least four other factors that came into play: (1) prenatal environment, (2) experimentally produced variations in behavior, (3) human children reared in abnormal environments, and (4) differences among social or occupational groups.

Noting that her contemporaries had been perhaps asking the wrong question when it came to heredity and environment, Anastasi observed:

> The traditional questions about heredity and environment may be intrinsically unanswerable. Psychologists began by asking *which* type of factor, hereditary or environmental, is responsible for individual differences in a given trait. Later, they tried to discover *How much* of the variance was attributable to heredity and how much to environment. It is the primary contention of this paper that a more fruitful approach is to be found in the question, *'How?'*

Anne used phenylpyruvic amentia (phenylketonuria) and amaurotic idiocy (Tay-Sachs disease) to explain that some heritable conditions were isolated from any environmental influences. (At the time, both of these conditions were considered irreversible congenital defects.) While other conditions, such as hereditary deafness, would initially cause intellectual lags, these would not remain once adaptations had occurred. Furthermore, Anastasi pointed out that individuals might display susceptibility to inherited factors that were then triggered by environmental factors (such as in the diathesis stress model). The most important point, for Anne, in this argument is that any influence heredity had on psychological traits was indirect. "Psychological traits are related to genes by highly indirect and devious routes," she emphasized.

Another salient point for Anastasi was that environmental variations could be either organic or behavioral, and organic variants would resemble hereditary factors. These factors could be set along a continuum of how much they directly or indirectly affected behavior. Behavioral alternatives were considered to have a direct influence on behavior while those considered organic were of an indirect relationship. As an indirect influence from an organic cause, Anne used the stereotypical "blondes have more fun," while the direct environmental factor was exemplified by social class membership. Anne further clarified by stating, "There is clearly a need for identifying explicitly the etiological mechanism whereby any given hereditary or environmental condition ultimately leads to a behavioral characteristic – in other words, the 'how' of heredity and environment."

Psychometrics

The area for which Anastasi is most well-known is psychometrics. Psychometrics is the field of study concerned with the theory and technique of psychological measurement. She felt that psychologists were having difficulty staying focused on the reason for psychometrics rather than becoming absorbed by the construction of the test. Anne began her 1991 article, "The Gap between Experimental and Psychometric Orientations," stating that

> One of the inevitable consequences of the rapid growth of psychology is an increasing specialization in the training and functioning of psychologists. Specialization is obviously needed ... At the same time, specialization creates ...the danger that the

methodological focus becomes too circumscribed to provide an adequate picture of so complex a phenomenon as human behavior. As a result, one's data may be incomplete and one's conclusions incorrect.

Anne felt that the scientists were becoming so focused on the development of the test and the technique, that the very reason for the test was becoming lost.

Another point made by Anastasi was that initially experimental psychologists ignored random variability because it was seen as "error" and would therefore restrict how the general findings might be used. Because these early experimental psychologists ignored any form of random variability, Anne felt that they were simply exploring general cases of human behavior and did not learn anything specific to real, individual human differences in behavior.

Anne and other psychometricians, on the other hand, consider any variance, not as error but as crucial to the investigation of human behavior. All facts, including all sources of variance, and the overall measure of variability (standard deviation) are inextricably linked in our analysis of the findings. Part of this analysis includes seeking the full range of human variability for the behavior under question. By realizing that the standard deviation covers the middle 95% of group behavior, we have one avenue for analyzing individual differences. Including an awareness of the correlation coefficient (how closely two variables fluctuate together) gives us additional information. Together these two tests give us a more complete picture of how an individual's behavior compares to the group, and how individual behavioral factors within the person fill out that picture.

Closely linked to these issues, according to Anastasi, is experimental design. Anne lists three key aspects linking statistical methodology and experimental design: (1) Analysis of Variance (ANOVA), (2) Structural Equation Modeling (SEM), and (3) Factor Analysis. Each of these approaches gives us a more complete picture of the variability and differences both within and between individuals. ANOVA allows us to study simultaneously the effects of several independent variables. Factor analysis creates a different lens for understanding. For example, how do gender, musical talent, and handedness affect mathematical ability? Does only one of these main factors come into play? Two? An interaction between one or more variables? Or does one factor, say handedness, only seem to affect mathematical ability if musical talent is first taken into consideration? The final link between statistics and experimental design, SEM, takes our understanding of variables and their impact even farther. SEM tests theoretical models (assumptions explaining *how* the data was generated) using hypothesis testing to develop our understanding of the complex relationships among constructs (any complex psychological concept, such as fear, motivation, personality, etc.).

Ann felt that when dealing with human behavior these two aspects, variability and experimental design, were of vital importance. You could not ignore variability or you were liable to come to false conclusions. At the same time, you could not become totally immersed in the statistics and ignore the psychological content and context of human behavior. Each aspect depends upon the other for informative operation in research design, in data analysis, and in the interpretation of the results.

Intelligence

Another area where Anastasi had extraordinary impact was with the concept of intelligence. In a time that many individuals considered intelligence fixed past about age 12, and defined by a single number, Anne saw things differently. "Intelligence is not a single, unitary ability, but rather a composite of several functions. The term denotes that combination of abilities required for survival and advancement within a particular culture" (Anastasi, 1992, p. 613). Of particular note here is Anne's focus on intelligence as a function of culture.

Anastasi believed that most references to culture-free and culture-fair tests were erroneous and was adamant that culture-free tests were impossible to design. Most of our current intelligence tests measure success in an academic environment and not success in the individual's cultural environment. Anne asserted that while this use of a test was valid, an intelligence test that measured how well individuals have acquired skills and knowledge valued in their own culture should be developed.

Much of her research emphasized what intelligence tests should and should not be used for, and cautioned against the misuse and misinterpretation of test results. She stressed that intelligence (not just the scores) changes over time and that intelligence can improve with experience. Anastasi wrote that tests can serve a predictive function only insofar as they indicate to what extent the individual has acquired the prerequisite skills and knowledge for a designated criterion performance. What persons can accomplish in the future depends not only on their present intellectual status, as assessed by the test, but on their subsequent experience. She pointed out that intelligence tests can be used for three things:

1) They permit a direct assessment of prerequisite intellectual skills demanded by many important tasks in our culture.
2) They assess availability of a relevant store of knowledge or content also prerequisite for many educational and occupational tasks.
3) They provide an indirect index of the extent to which the individual has developed effective learning strategies, problem-solving techniques and work habits and utilized them in the past.

See Also

Creativity, Assessment of
Culture Free/Fair Intelligence Test
Individual Differences in Creativity

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Jens B. Asendorpf

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Jens B. Asendorpf (born October 26, 1950 in Marburg, Germany), emeritus professor at the Humboldt-Universität zu Berlin (Germany), is an influential personality psychologist. He first studied mathematics and computer science (1969–1973; University of Kiel and Technical University of Berlin) and then also psychology (1973–1978; University of Marburg and University of Giessen). Asendorpf received his doctorate in psychology from the University of Giessen (1981) under Klaus R. Scherer and was a visiting scholar at Yale University while still a graduate student. He then worked with Franz E. Weinert on a longitudinal study of personality development from age 4 onwards (LOGIC) at the former Max Planck Institute for Psychological Research in Munich (1981–1994). From 1994 to 2014, Asendorpf assumed the role of full professor for personality psychology at the Humboldt-Universität zu Berlin. He has been head of department (2008–2010), president of the European Association for Personality Psychology (EAPP; 2010–2012), served as an editor for prestigious journals (e.g. *European Journal of Personality*), and is on numerous editorial boards (e.g. *Journal of Personality and Social Psychology* since 2008).

Asendorpf has been, and still is, very prolific, having published more than 120 articles, 10 books, and 85 chapters. His papers appear in the most prestigious psychological journals (e.g. *Journal of Personality and Social Psychology*, *Developmental Psychology*, *Child Development*) and have been widely cited (14,509 citations, with an *h*-index of 59 as of June 28, 2017 on Google Scholar). Moreover, he has written one of the definitive German textbooks of personality psychology (*Psychologie der Persönlichkeit*), published by Springer, and contributed to the recognition of behavior genetics in Germany by continuously publishing chapters on this topic in German psychological and sociological handbooks and textbooks. He also was among the first to alert personality psychologists to the replicability problem (Asendorpf et al., 2013). Asendorpf has received numerous grants, collaborated with researchers around the world, and conducted high-profile research throughout his career. To recognize his outstanding career, he has received the prestigious Life-Time Achievement Award from the EAPP.

Asendorpf's contributions to personality psychology are manifold. He is flexible and diverse in his research interests which can be roughly segmented in having contributed important insights into (1) non-verbal expressiveness (1979–1983); (2) personality development, including continuation of the LOGIC study until age 29 (1982–ongoing); (3) social interactions and shyness in children and adults (1984–1994); (4) temporal consistency and continuity of personality (1992–1994); (5) couple relationships and attachment (1994–ongoing); (6) personality types versus personality traits (2001–2006); (7) implicit measures in personality assessment (2006–2015); and (8) development of immigrant versus non-immigrant adolescents (2006-ongoing). Generally, he has always maintained a particularly keen interest in social relationships (e.g. shyness, inhibition, attachment, sexual and romantic relations, social support, social competencies), personality development (e.g. continuity of traits; inter-individual differences in intra-individual stability; developmental trajectories across the life span), multi-method data (e.g. physiological measures, observation data, self-reports, informant-reports, implicit measures), as well as advanced statistical analyses (e.g. multi-level modeling).

Asendorpf pioneered multi-method approaches to personality assessment by being one of the first European researchers to fruitfully combine systematic behavior observation in the laboratory *and* field with informant- and self-reports. With this methodology he was able to develop an influential two-factor model of social inhibition from childhood to young adulthood (e.g. Asendorpf, 1989; Asendorpf et al., 2008). Later, he also included implicit association tasks into his methodological repertoire. For example, he demonstrated how explicit and implicit self-concepts influence controlled and spontaneous behavior in social situations, respectively (Asendorpf et al., 2002). Further, Asendorpf routinely employed longitudinal multi-method data to answer questions on personality development. For example, in the Berlin Relationship Study, which he initiated, he examined to what extent personality traits form relationships and vice versa across time (Asendorpf & Wilpers, 1998). His interest in social relationships, development, and multi-method data culminated in several newer, highly influential projects and papers, such as (1) an evolutionarily informed account of human sociosexuality (Penke & Asendorpf, 2008), (2) the Berlin Speed Dating Paradigm to examine the course from dating to mating to relating (Asendorpf et al. 2011), (3) distance regulation in partner relationships (Hagemeyer et al., 2015), and (4) acculturation processes (Reitz et al., 2016).

In all of his studies, Asendorpf has demonstrated outstanding methodological rigor and statistical acumen. The content, quality, and quantity of his research have thus brought Asendorpf into prominence and position him as one of the most influential personality psychologists of our time.

See Also

Longitudinal Research
Personality Stability Over Time
Personality Development Across the Lifespan
Shyness
Structural Equation Modeling in Personality Research

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James N. Butcher

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James N. Butcher is a leading psychologist in personality assessment. He is best known for his significant contributions to research and clinical application of the Minnesota Multiphasic Personality Inventory (MMPI), its revised edition (MMPI-2), and its adolescent edition (MMPI-A). Throughout his professional career in psychology, Butcher has authored 60 books and more than 250 articles covering a large range of topics including: MMPI/MMPI-2/MMPI-A, cross-cultural translation and adaptation of personality assessment, computer-based personality assessment, and abnormal psychology. Butcher has conducted numerous workshops on MMPI/MMPI-2/MMPI-A and trained thousands of professionals in the use of these instruments, both domestically and internationally.

Education

Butcher graduated from Guilford College in North Carolina with a BA in psychology in 1960. He received his MA in experimental psychology in 1962 and his PhD in clinical psychology in 1964 from the University of North Carolina at Chapel Hill. Since then, he served on the faculty of the Department of Psychology at University of Minnesota for nearly 40 years till his retirement in 2003.

Scholarly Accomplishments and Contributions

One specific area of accomplishments Butcher has made is research on and application of the MMPI/MMPI-2/MMPI-A, which were covered by many of his books and articles. Butcher's first book on the MMPI, *MMPI: Research Developments and Clinical Applications,* was published in 1969, and his most recent book (with Hass, Greene, and Nelson), *Using the MMPI-2 in Forensic Assessment*, was published in 2015 by the American Psychological Association (APA). These books, along with numerous others in between, identified needs

and trends, summarized empirical findings, and provided guidance for the use of MMPI instruments across various settings, nations, languages, and ethnicities.

Butcher's initial work on the MMPI began with a teaching assignment of a course on MMPI during his second year as faculty at the University of Minnesota. He was surprised to find that the research at Minnesota was rather sparse due to two historical figures of MMPI (Starke Hathaway and Paul Meehl) moving to other areas of research. Butcher soon identified the need to reactivate attention to the MMPI. He established an open forum on the MMPI and organized the first *Conference on Recent Developments in the Use of the MMPI* in 1966. This MMPI symposium was held annually, leading to a proliferation of research on the MMPI that had opened new research directions for the instrument.

Butcher and his colleagues also identified an even greater need for practical training in use of the instrument. They began to develop training workshops to present up-to-date research and clinical interpretive strategies to practitioners. These workshops developed substantially and soon extended from domestic to international. Butcher himself traveled throughout the United States to give these workshops in order to make the programs accessible to professional psychologists. At one time, it was estimated that between 1,000 and 1,500 psychologists enrolled in these programs annually. Internationally, Butcher has traveled to 33 countries to give these workshops, leading to the extensive international application of MMPI/MMPI-2/MMPI-A. Currently, the MMPI-2 has 34 translations and the original MMPI has over 150 translations. MMPI/MMPI-2/MMPI-A has been among the most widely employed and internationally adapted personality inventories in clinical assessment.

An important topic of the annual MMPI symposium was whether the MMPI should be revised. Butcher and his colleagues soon concurred on such a need. Butcher was active in advocating and providing suggestions for the revision. The MMPI Revision Committee was formed in the early 1980s and Butcher and other two committee members were appointed to lead the revision team. They decided that the revision should retain the essential ingredients and strengths of the original MMPI yet allow for modernizing and removing some of the ineffective aspects that hampered its application. Led by Butcher, the revision task involved considerable consultation with experts and extensive data collection from both normative and clinical samples, which, after 10 years, culminated in the publication of the MMPI-2 in 1989 and the MMPI-A in 1992.

Butcher has effectively utilized his expertise and experience with MMPI/MMPI-2/MMPI-A in personality assessment at a more general level. Through his books and articles, he has called attention to the importance of revising outdated personality instruments and updating normative and clinical samples, and provided important principles, strategies, and recommendations for test revision procedures. His work led to him being awarded the Bruno Klopfer Award for Lifetime Contribution from the Society for Personality Assessment in 2004.

Similarly, with his expertise and experience from international application of MMPI/MMPI-2/MMPI-A, Butcher has provided an important framework for cross-cultural adaptation and validation of a personality instrument originally developed in a Western culture. In many of his books and articles, he discussed cultural factors, translation methods, and procedures to evaluate translation equivalence. In 1970, he founded the International Conference on Personality Assessment, through which international scholars discussed

their research and exchanged views on issues and techniques in personality assessment for intercultural contexts. His contribution to international personality assessment won him the Doctor Honoris Causa award from the Free University of Brussels, Belgium in 1990, and the Laurea ad Honorem in Psychology award from the University of Florence, Italy, in 2005.

Computer based application of personality assessment has been another important component in his scholarly works. Butcher had this interest in the 1960s but it became dormant during the years when he was heavily involved in the MMPI symposium, training, and revision. This interest was revived in the early 1980s when he was encouraged by his colleagues to develop a computer program for interpretation of the MMPI. Butcher then received funds from the University of Minnesota Press and National Computer Systems to develop this program, named the Minnesota Report. It was later published and adapted for use with adolescents, in personnel and forensic settings, and in cross-cultural contexts. During these years, Butcher had written many articles to discuss the use of computers in personality assessment, its reliability and validity, and challenges, and to provide guidance and directions for computerized clinical assessment.

Throughout his career in psychology, teaching has been an essential part of his professional life. Butcher has been actively involved in teaching and advising. In line with his research, his teaching covered a wide range of topics in personality assessment including various techniques, MMPI/MMPI-2, and cross-cultural study of personality. In addition, abnormal psychology was an important subject in his teaching. He has coauthored 11 editions of *Abnormal Psychology and Modern Life*, a widely used textbook for abnormal psychology and currently in its 16th edition. As the major advisor, he advised more than 50 doctoral dissertations between 1968 and 2003. Many of his students are now productive researchers and active practitioners in their own fields. Indeed, his own research program was both stimulated and broadened substantially by the contributions of many of his graduate students.

Butcher's professional life also included editorial services to many professional journals, and consulting services to both the profession of psychology and the community. Butcher is a fellow and member, and past member of the Board of Trustees of the Society for Personality Assessment. He was also a fellow and member of the APA during 1963–2009 for Division 12 (Clinical Psychology), Division 5 (Evaluation and Measurement), and Division 26 (History of Psychology). Butcher is the former editor of *Psychological Assessment*, an APA publication. He is one of the consulting editors and associate editors for the eight-volume set *Encyclopedia of Psychology*, published jointly by APA and Oxford University Press. He co-edited the 10-volume *Personality Assessment Series*, published between 1982 and 1995. He served on the editorial board fo*r* the *Oxford Handbook of Psychology* and currently serves as consulting editor for several other journals.

Butcher's interest in war planes since childhood developed into a professional interest in aviation psychology, leading him to provide professional consultation to airline pilot selection and airline disaster response management. Butcher has been involved in many forensic testimonies as an expert in many legal cases in which evaluations based on MMPI were involved. He provided his expert opinion on the interpretation of MMPI scores, technical aspects of the test, and meaning of a particular configuration of an MMPI profile.

A Pathway from Paperboy to Korean War Soldier, to Psychologist, to Artist

For many people, their professional accomplishments are more likely to progress along a straightforward journey, with a resourceful and supportive environment beginning in their childhood. However, this is not the case for Butcher, whose journey wound through unusually difficult circumstances, turns and twists, and surprising discoveries.

Butcher was born in Bergoo, West Virginia in 1933. He lived a very difficult early life in this coal-mining town. He lost both of his parents when he was young and he and his siblings had to raise themselves independently. Butcher started to earn money to support his siblings by delivering newspapers at age 11 and did so for most of the remainder of his school years. Butcher enlisted in the U.S. Army at age 17 after graduating from high school, beginning his search for an identity. He served in the military for three years and was deployed to Korea where he fought two major battles in the final years of the war (1952–1953). His combat experiences and the living conditions on the front are graphically described in his book, *Korea: Traces of a Forgotten War*. While going into the military might seem to be a false start in his professional journey to psychology, his experience and interactions with a South Korean soldier and people from other cultures may have planted a seed for his interest and involvement in cross-cultural personality research 20 years later.

Butcher's journey from being a paperboy to a Korean War serviceman did not immediately turn to psychology after his discharge from military service. Readjusting to civilian life, he tried jobs such as sales and private detective, but soon found them not the right choices. The critical turning point to psychology occurred when he was evaluated through a psychological test on mathematics and reasoning for an insurance job. Butcher was rejected, however, not because he was not qualified given the test results, but rather he was overqualified for such a position. Instead of hiring him for the position, the job interviewer expressed his great confidence in Butcher's potentiality and encouraged him to go to college to further explore and actualize such potentiality. His confidence and encouragement led Butcher to a BA degree in psychology from Guilford College in North Carolina in 1960 and his continued pursuit of an MA in experimental psychology from the University of North Carolina in 1962.

However, although pursuing a career in psychology, Butcher's professional pathway had not been aligned to clinical psychology and personality assessment until he took a clinical course. As part of the requirement of the course, Butcher began his practicum at a local hospital that involved intensive clinical assessment. This clinical experience made his professional pathway to clinical research and assessment solid and crystal, leading to his PhD in clinical psychology from University of North Carolina in 1964. In the same year he published his first professional article on effect of social economic status on MMPI differences between Black and White Americans, an event that imprinted him on MMPI research.

Butcher's professional pathway in psychology followed an academic direction when he became a faculty member in the Department of Psychology at the University of Minnesota in 1964. This is a place where he found a sense of belonging, began the MMPI symposium and training workshops, taught and advised, and made significant contributions to psychology. Yet, this pathway did not end there, but surprisingly took another turn as his

retirement was approaching. In transitioning toward retiring, he accidently uncovered his talent in watercolor painting, which had remained unrecognized and dormant in his previous personal and professional life. His *Bike Trail in Excelsior* is the cover of the October, 2005 issue of *American Psychologist*, and his *Vicksburg Courthouse* was the jacket cover of his book (with Pope and Seelen), *The Use of the MMPI/MMPI-2/MMPI-A in Court*, published by APA in 2006.

See Also

Cross-Cultural Research, Methodological Issues of
Minnesota Multiphasic Personality Inventory (MMPI)

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Charles S. Carver

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APS Fellow Charles S. Carver (1947–2019) was the Director and Professor of the Adult Division within the Department of Psychology at the University of Miami and a foundational researcher in the the field of personality psychology. He was the creator of several widely-used scales or measures in social psychology and the recipient of numerous awards.

Dr. Carver received his doctorate from the University of Texas at Austin in 1974 after earning an AB in psychology from Brown University in 1969. His interest in psychology was sparked at Brown, where what fascinated him most about his then-favorite subject, literature, were the characters in the stories, specifically their motivations and beliefs. Shortly after receiving his PhD in experimental personality psychology, he became an Assistant Professor of Psychology at the University of Miami, and ultimately a Distinguished Professor.

He served as an editor for four different publications, including six years for the *Journal of Personality and Social Psychology: Personality Processes and Individual Differences* and five years as an associate editor of *Psychological Review* from 2010 to 2015. He authored 10 books, including *Attention and Self-regulation: A Control-theory Approach to Human Behavior* and an undergraduate textbook on personality psychology entitled *Perspectives on Personality*, co-authored with Dr. Michael Scheier. He also wrote more than 400 articles and chapters and created 14 self-report measures, including some Spanish translations.

Dr. Carver's research spanned the disciplines of personality, social, and health psychology. Most of his research was related in some way to self-regulation processes, and included such diverse topics as the effects of stress and optimism on coping and resilience, impulse and constraint and how they are related to depression, behavioral approach and avoidance systems, and even adult attachment.

According to his website, Carver saw human beings as complex goal-directed systems that self-regulate their actions with respect to those goals. He examined the ramifications of effective and ineffective self-regulating strategies when having multiple goals at once, as well as when a person has difficulty reaching one of those goals. He was also interested in

approach and avoidance responses and how they are informed by self-regulation with respect to goals and "anti-goals." His book *On the Self-Regulation of Behavior*, co-authored with Dr. Scheier, is an overview of human functioning through this lens of behavior as goal-oriented and feedback-regulated.

Another area of Carver's research, much of which was conducted with Scheier, concerns optimism and pessimism and their role in coping and persistence in the face of adversity. With Scheier and others, Carver specifically studied coping as it pertains to health issues such as breast cancer and coronary disease. He was also interested in depression and the neurological origins it had in aggression and approach motivation, along with many other interests and projects. His research was funded by grants from the National Cancer Institute, the American Cancer Society, and the National Science Foundation.

Carver developed or contributed to the development of many self-report questionnaires which he shared freely with the research community. These include the widely-used COPE (& Brief COPE) Inventory, which is used to assess coping responses; the LOT-R (Life Orientation Test – Revised), which assesses individual differences in optimistic and pessimistic dispositions, and BIS/BAS scales, which measure the sensitivity of incentive and aversive motivational systems. He also developed numerous others, including the Revised Self-Consciousness scale, which assesses private and public self-consciousness, as well as several scales that measure self-esteem and quality of life for those diagnosed with breast cancer.

During his career, Carver earned eight awards, including four from the American Psychological Association:

- Distinguished Scientific Contributions to Psychology Award, American Psychological Association, 2018
- Distinguished Lifetime Career Award, International Society for Self and Identity, 2012
- Jack Block Award for Distinguished Contributions to Personality Psychology, Society for Personality and Social Psychology, Division 8 of the American Psychological Association, 2011
- Distinguished Faculty Scholar Award, University of Miami Faculty Senate, 2011
- Donald T. Campbell Award for Distinguished Contributions to Social Psychology, Society for Personality and Social Psychology, Division 8 of the American Psychological Association, 2007
- Career Achievement Award, Stress and Anxiety Research Society, 2001
- Provost's Award for Scholarly Activities, University of Miami, 1999–2000
- Award for Outstanding Scientific Contribution to Health Psychology (Senior Level), Division 38 (Health Psychology) of the American Psychological Association, 1998

Dr. Carver was the first person to receive awards in all three of the disciplines of social, health, and personality psychology.

In memory of Carver's beloved dog, Calvin, who was an honorary member of the University of Miami Psychology department, the department has instituted the S.T. Calvin Award. This honor is awarded to one graduate student every year for excellence in quantitative methods. Carver is survived by his wife and collaborator Dr. Youngmee Kim, and their two dogs, Jahnghan and Tntnhan, two new honorary department members.

The field of personality psychology is indebted to Carver. In addition to generating numerous oft-cited self-report scales, his research on self-regulation, including coping, optimism,

and resilience has helped guide the direction of the field over the past three and a half decades. For more information, readers can visit www.psy.miami.edu/faculty/ccarver/.

See Also

Michael F. Scheier
Optimism/Pessimism, Assessment of
Self-Consciousness, Assessment of

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Lee J. Cronbach

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Background

Lee J. Cronbach, an educational psychologist and renowned psychometrician, was an extraordinary scholar that made many contributions to the disciplines of education, evaluation, psychology, research, and statistics. He was born on April 22, 1916 in Fresno, California, and he died of heart failure on October 1, 2001 in Palo Alto, California. As a small child, in 1921, Cronbach was given an IQ test, which produced a score of 200. Owing to his high IQ score, Cronbach was selected by Lewis Madison Terman to be a participant of Terman's renowned program known as the Genetic Studies of Genius, also known as the Terman's Study of the Gifted.

Cronbach's intellectual gifts led him to accumulate a wide variety of educational experiences. At the age of 14, he graduated from Fresno High School. By the time he was 18 years old, Cronbach graduated with two Bachelor of Arts in chemistry and mathematics from Fresno State University. After graduating with his Bachelor degrees, Cronbach pursued a teaching credential at University of California, Berkeley, which he earned in 1935. After earning his teaching credential, Cronbach earned a Master of Arts in Education in 1937, also from University of California, Berkeley. Finally, Cronbach earned a Doctor of Philosophy in Educational Psychology from University of Chicago in 1940. Throughout the rest of his career, Cronbach received a handful of honorary doctoral degrees. He earned honorary Doctor of Humane Letters, also known as Litterarum Humanarum Doctorate, from Yeshiva University in 1966, the University of Chicago in 1979, and the University of Illinois in 1982. In addition, he earned honorary Doctor of Philosophy degrees from University of Gothenburg in 1977 and the University Autónoma in 1985.

After completing his educational endeavors, Cronbach returned to academia to build a 40-year career as a professor. In 1940, he became an assistant professor of psychology at Washington State University, where he taught until 1946. During his tenure at Washington State University, Cronbach was on leave from 1944 to 1945 to serve as an associate military psychologist for the United States Navy in San Diego, California through the University of

California's Division of War Research. After his time at Washington State University, Cronbach obtained an assistant professor of educational psychology position at the University of Chicago, which he held from 1946 to 1948. After leaving the University of Chicago in 1948, Cronbach obtained an associate professor of educational psychology position at the University of Illinois, which he held from 1948 to 1964. During his time at the University of Illinois, Cronbach served as a scientific liaison officer for the Office of Naval Research. In 1964, Cronbach obtained his final professor positions at Stanford University. He was first a professor of education from 1964 to 1966, then he was a Vida Jacks professor of education from 1966 to 1980. After retiring from teaching in 1980, Cronbach held the status of professor emeritus at Stanford University until his death in 2001.

Major Research Contributions to Research and Statistics

Cronbach made major contributions to the field of research during his time in academia. In fact, Cronbach held the 48th position on a list of most cited psychologists in the twentieth century published by *A Review of General Psychology*. Cronbach's most notable contributions to the field of research relate to psychometric analysis, including internal consistency analysis through alpha reliability coefficients, as well as the construction of test-validity theory and generalizability theory.

To begin, Cronbach established coefficient alpha in 1951, now widely referred to as Cronbach's alpha. Cronbach's alpha is a revision of Kuder-Richardson Formula 20 that replaced the split-half reliability test as the most widely used reliability test of internal consistency. The purpose of coefficient alpha is to test the internal consistency of coefficients. More specifically, coefficient alpha is essentially the correlation between all possible split-halves of a measure. Thus, the importance of coefficient alpha derives from the non-unidimensional nature of the reliability test. Therefore, coefficient alpha allows multiple abilities, behaviors, and cognitions to be reliably measured simultaneously.

Following his work on coefficient alpha, Cronbach's next major contribution regarded the test-validity theory. Prior to Cronbach's work on validity, psychologists had been testing validity with simple correlational analyses. In 1955, in collaboration with Paul Meehl, Cronbach published "Construct Validity in Psychological Tests" in *Psychological Bulletin*. This publication helped bring clarity to the concept of validity. Further, this clarity helped to establish the four types of validity, which are still taught in psychometrics and other measurement courses today. These four types of validity are concurrent validity, construct validity, content validity, and predictive validity. Cronbach and Meehl's aforementioned article combined concurrent validity and predictive validity to form the concept of criterion validity, which is still used modern research.

After Cronbach's work in test-validity theory, his major contributions shifted toward generalizability theory. The main purpose of generalizability theory is to assess the reliability of statistical measures. There were two major articles that Cronbach published that helped shape the concept of generalizability theory. In collaboration with Rajaratnam Nageswari and Goldine Gleser, Cronbach published "Theory of Generalizability: A Liberation of Reliability Theory" in 1963 in *The British Journal of Statistical Psychology*. This article provided a basis for generalizability theory, which was expanded upon in 1965 with Gleser,

Cronbach, and Rajaratnam's publication, "Generalizability of Scores Influenced by Multiple Sources of Variance," in *Psychometrika*.

Major Contributions to Education and Evaluation

Although Cronbach made many contributions to research and statistics, he also made important contributions that intersected in the fields of education, evaluation, and psychology. Before discussing this interdisciplinary and multidisciplinary work, it is worth noting that Cronbach made specific contributions to education. In fact, Cronbach's research and argumentations on the impact of learning environments and instruction have remained heavily influential in classrooms today. These research projects and argumentations spanned from understanding how learning processes are impacted by various contexts to advocating for a more holistic educational agenda, as opposed to one solely based in science.

Cronbach's work in educational program evaluations bridged the fields of education and evaluation. His work was highly influential in changing the use of evaluations in education to focus on course improvement through learning outcomes, which was highlighted in his 1963 article "Course Improvement Through Evaluation" in the *Teachers College Record*. Prior to Cronbach's work in educational program evaluation, the information that was being collected in educational evaluations for course improvement was lackluster due to only focusing on students' test performance. This narrow focus resulted in only certain aspects of classrooms being impacted and modified. Cronbach advocated for full course evaluations to optimize the classroom experience for students in multiple aspects, such as pedagogy, learning environment, and classroom context. Cronbach's work on course improvement helped to create systematic evaluations that are used in most if not all, post-secondary educational institutions today.

Although his contributions to educational program evaluations were considerable, Cronbach's contributions to the field of evaluation spanned beyond course improvement. Cronbach also made considerable contributions to evaluation practice through his work in utilization of evaluations, which focused on enlightenment use and generalizability through his units, treatments, observations, and settings (UTOS) model. More specifically, with his UTOS model, Cronbach posited a way to generalize evaluation methodologies from one evaluation to similar ones. Furthermore, to ensure enlightenment use of evaluations, Cronbach posited with the UTOS model that primary intended users should be brought along throughout the evaluation process due to their influence on organizations' policies.

Other Notable Works

As mentioned, Cronbach had many publications throughout his career, some of which have been discussed previously. However, it is vital to represent his work in a respectable regard by acknowledging some of his other major works. In the fields of education and psychology these works included *Exploring the Wartime Moral of High School Youth* (1943), *Essentials of Psychological Testing* (1949), and *Educational Psychology* (1954). Cronbach's

notable works in the field of evaluation included *Toward Reform of Program Evaluation* (1980) and *Designing Evaluations of Educational and Social Programs* (1982). In addition, Cronbach was the editor for *Text Materials in Modern Education: A Comprehensive Theory* (1955) and *Platform for Research* and *Readings for Educational Psychology* (1964).

Acknowledgments and Awards

Cronbach was honored with leadership positions and memberships in a variety of academic associations for his many academic contributions. To begin, Cronbach was a member of the American Psychological Association (APA). From 1950 to 1953, Cronbach held a chair position on the Committee on Test Standards for the APA. In addition, he served on the APA's Publication Board from 1951 to 1953 and the APA Board from 1952 to 1958. In 1957, Cronbach was elected president of the APA, a position that he held for one year. In addition to his presidency in the APA, Cronbach was the president of other professional organizations during his lifetime, including the Psychometric Society and the American Educational Research Association. Cronbach was also the director of the Stanford Evaluation Consortium at Stanford University during the 1970s. Aside from his presidencies and directorship in these professional organizations, he also held memberships in the American Philosophical Society, the American Academy of Arts and Sciences, the National Academy of Education, and the National Academy of Sciences during his academic career.

Owing to Cronbach's major contributions and scholarship, he received many acknowledgments and awards. In 1965 he was elected into the National Academy of Education. For his many research contributions, the University of Tokyo awarded Cronbach a Fulbright fellowship from 1967 to 1968. In 1973, he received the Distinguished Scientific Contribution Award from the American Psychological Association for his work on coefficient alpha, test-validity theory, and generalizability theory. Similarly, for these major contributions, Cronbach was selected into the National Academy of Sciences in 1974. In 1979, Cronbach received the Alva and Gunnar Myrdal Science Award from the American Evaluation Association.

Conclusion: Personality and Individual Differences

In conclusion, Cronbach made many contributions to the fields of education, evaluation, psychology, research, and statistics, and he has received a vast amount of recognition for these contributions. It is notable that some of these contributions and recognitions were due to Cronbach's work in individual differences and personality research. For instance, Cronbach's work in education shed light on the influence of different learning environments, learning processes, and behaviors on student outcomes. Therefore, Cronbach created ways to better foster learning in classroom settings by taking individual and environmental differences into consideration.

Cronbach's work in research and statistics also heavily influenced personality measurement. In fact, Cronbach's alpha is a key component to constructing personality models based in reliable measures because alpha reveals the internal consistency of measures, as

well as sub-measures within the measure. In addition, multiple personality traits, or various aspects of a personality trait, can be measured simultaneously due to Cronbach's work in psychometrics. Owing to the nature of personality research, this contribution has greatly helped the progression of research in personality and individual differences through the ability to construct models based in various personality traits. Overall, Cronbach's contributions have helped psychometricians to be more efficient in their research, and these contributions have greatly benefited society through research grounded in sound measures that he helped to create a system for developing.

See Also

Reliability, Issues of
Validity, Issues of

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Turhan Canli

Turhan Canli

Stony Brook University

Turhan Canli, Professor of Psychology and Psychiatry at Stony Brook University, made seminal contributions to the neuroscience and neurogenetics of individual differences in emotion, personality, and social behavior. He was born in 1966 in Germany, raised in Turkey and Germany, and immigrated to the United States in 1985 after completing the German Gymnasium. He received his undergraduate BA in Psychology (s*umma cum laude*, *summo cum honore in thesi*) from Tufts University in 1988, and his PhD in Psychobiology from Yale University in 1993 in the laboratory of Professor Nelson Donegan. His postdoctoral education continued in behavioral neuroscience at Yale University (1993–1995) in the laboratory of Professor Thomas H. Brown, and in cognitive/affective neuroscience at Stanford University (1995–2001) in the laboratory of Professor John D. E. Gabrieli. During his California years, he also served as an instructor for one semester at the University of California, Berkeley, where he taught personality psychology while Professor Oliver John was on sabbatical leave. In 2001, he moved to Stony Brook University to join the faculty of the Department of Psychology, where he remains to date. At Stony Brook, he founded (and continues to direct) the Social, Cognitive, and Affective Neuroscience (*SCAN*) Center in 2008, and the Mind/Brain Center on War and Humanity in 2016, and served as Director of the Graduate Program in Genetics from 2010–2013. In 2017, he completed a Certificate in Refugee Mental Health from Harvard Medical School and expanded his work into the global mental health arena, and international humanitarian missions and human rights.

Early Contributions to the Neuroscience of Individual Differences in Emotion and Personality

Canli's early studies were in the domain of behavioral neuroscience and followed the Yale tradition of classical learning theory of the Rescorla-Wagner Model, focusing on the neural basis of learning and memory in Pavlovian learning phenomena and learned fear.

From there, Canli moved to Stanford to use functional magnetic resonance imaging to study emotional processes in the human brain. At a time when fMRI was a novel tool and most studies focused on highlighting consistent results across individuals, Canli instead focused on individual differences. During the Stanford years in Gabrieli's laboratory, Canli conducted the first imaging studies of individual differences in emotion, sex differences in emotional memory, and personality traits, which were published in *The Journal of Neuroscience* (Canli, Zhao, Brewer, Gabrieli, & Cahill, 2000), *Science* (Canli, Sivers, Whitfield, Gotlib, & Gabrieli, 2002), and *PNAS* (Canli, Desmond, Zhao, & Gabrieli, 2002), among others.

At Stony Brook, Canli expanded his investigations to include the role of genetic variants and gene-by-environment (G×E) interactions in the neural basis of individual differences in emotion and personality. This work was conducted in collaboration with Professor Klaus-Peter Lesch of Würzburg University, Germany, who was the first to publish on the role of allelic variation in the serotonin transporter gene in trait neuroticism (Lesch et al., 1996). The collaboration produced a number of imaging studies, which eventually led to the proposed "tonic model" of serotonin transporter gene function in the amygdala (Canli & Lesch, 2007; Canli et al., 2005), which hypothesized that presence of the short allele was associated with elevated resting activation of the amygdala even in the absence of phasic fear-eliciting stimuli. The collaboration also produced the first G×E fMRI study of the serotonin transporter gene polymorphism (Canli et al., 2006), showing that both stimulus responsiveness and resting activation in the amygdala varied as a function of two variables: life stress history and serotonin transporter genotype.

Molecular Psychology

Canli coined the term "molecular psychology" in an edited volume for Oxford University Press (Canli, 2015c) to delineate a research field using the tools of molecular biology/genetics/-omics applied to the study of behavior. According to Canli, "molecular psychology" began in 1996 with the discovery that specific gene variants map onto individual differences in complex personality traits (while acknowledging that molecular tools have long before been used in behavioral neuroscience), but later expanded to include a wider range of molecular processes such as gene regulatory mechanisms, epigenetics, -omics, optogenetics, and genetic engineering methods such as CRISPR. Canli's interest in mechanisms of gene expression regulation and genomics led to two lines of research: one which addressed epigenetic mechanisms of gene-by-environment interactions (Duman & Canli, 2015), and a second which for the first time identified genome-wide gene expression networks in the human brain associated with social cognition, such as loneliness (Canli et al., 2017). The latter discovery was of particular significance because it showed that a wide range of somatic illnesses known to be exacerbated by social isolation are connected via an underlying gene regulatory network, with implications for the study of social regulation of disease genes from cancer to heart disease to inflammatory illness.

Depression as an Infectious Disease

In 2014 and 2015, Canli published and presented his ideas on depression as an infectious disease to academic (Canli, 2014a, 2014c) and public audiences (Canli, 2014b). He hypothesized that, for a subset of patients, changes in specific brain regions associated with depression are caused by either known or yet-to-be-discovered pathogens that can rewire neural systems, as has already been discovered to be the case with *Toxoplasma gondii* and other parasites that are capable of changing an infected host's behavior. Canli's theory builds on an emerging consensus that depression is associated with activation of the immune system to systemic infection (Dantzer, O'Connor, Freund, Johnson, & Kelley, 2008), but goes further by proposing brain-specific mechanisms initiated by activation of disease-specific viral, bacterial, or parasitic pathogens. The proposal caught the attention of many practitioners and patients: the peer-reviewed publication had been accessed more than 82,000 times and the TEDx talk had been viewed by more than 182,000 by the end of 2019. In 2019, Canli published an updated theory on the role of human endogenous retroviruses (HERVs) in mental health, suggesting that trauma or viral infections can activate HERVs embedded in human DNA to promote resilience or vulnerability (Canli, 2019). Research in Canli's laboratory on this topic is ongoing.

Neuroethics

In 2006, Canli joined colleagues from neuroscience, ethics, law, and related disciplines in Asilomar, California, to form the "Neuroethics Society" (later renamed the "International Neuroethics Society," www.neuroethicssociety.org), which is concerned with the ethical, legal, and social implications of the use of neuroscience and its discoveries in the real world, such as cognitive enhancement, lie detection, brain-machine interfaces, vegetative and minimally conscious states, neuroprivacy, and neuromarketing. He served on the Society's Executive Board from 2006 until 2015, and organized its first two annual meetings. At Tufts University in 2006, he organized a conference and workshop on neuroscience applications in national security (Canli et al., 2007), whereas his later work in neuroethics focused on the role of genetics and genomics within the emerging field of what Canli called "neurogenethics" (Canli, 2015a, 2015b).

Global and Refugee Mental Health, Humanitarian Work, and the Founding of the Mind/Brain Center on War and Humanity

Since 2016, Canli has become increasingly involved in global mental health and human rights issues. While earning a Certificate in Refugee Mental Health from Harvard Medical School, Canli developed an international network of frontline mental health professionals, scientists and scholars, clinicians, healers, educators, policy-professionals, and non-governmental activists whom he recruited to the Mind/Brain Center on War and Humanity (www.stonybrook.edu/commcms/mindbraincenter/index.php), which focuses on the "human

condition in times of war." It seeks to identify communal, social, psychological, genetic, and neural factors and mechanisms that contribute to individual differences in thoughts and actions in times of war, such as political cognition, threat perception, biased thinking, and dehumanization, as well as forgiveness and compassion. Of particular interest are individual differences in mental health vulnerability and resilience following war trauma among military veterans, refugees, and former child soldiers, and the interplay between community and the individual to either exacerbate political conflict or promote individual and communal healing, reconciliation, and (re-) integration. Canli spoke about the mission of the Center at the UN University in Maastricht, the Netherlands; Toronto, Canada; and the University of Kisubi, Entebbe, Uganda. As of the end of 2017, the Center was engaged in humanitarian, clinical, or research projects in Syria, Turkey, and Uganda.

See Also

Depression
Health and Personality
Human Genome Project and Personality
Neuroticism
Oliver P. John

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Philip J. Corr

Philip J. Corr

City, University of London

Philip J. Corr, Professor of Psychology at City, University of London, has plowed a number of scientific furrows since receiving his doctorate in 1994 from the Institute of Psychiatry (IoP; now the Institute of Psychiatry, Psychology and Neuroscience, at King's College London, UK), where he researched the biological bases of personality, contrasting Jeffrey Gray's and the world-famous Hans Eysenck's theories – at the time Philip could not have imagined that he would, some 20 years later, publish a biography of this most remarkable of psychologists (Corr, 2016). Since his doctoral days, Philip has sought to make incremental progress in the general area of personality and individual differences. He has single and co-authored well over 150 papers, many book chapters, and is the co-author and editor of a number of other books. Philip relishes the opportunity to work and publish with colleagues around the globe, especially younger ones in the early steps of their career – he remembers well the support and guidance that was of such importance in his own academic development from, amongst others, such luminaries as Jeffrey Gray and Hans Eysenck. Philip held previous professorial appointments at University of East Anglia and Swansea University, both in the UK.

Philip has won several awards, starting with the Early Career Development Award (2001), from the International Society for the Study of Individual Differences (ISSID), where later he was honored by being elected by society members to the board of directors, and then president-elect (2013–2015) and president (2015–2017). In the UK, Philip co-founded the British Society for the Psychology of Individual Differences (BSPID), in which he was co-president for its first 10 years. Philip's research interests are in the general area of personality neuroscience, including its extension to, amongst other things, behavioral economics. Specifically, his personality neuroscience research concerns individual differences in fundamental systems of emotion and motivation that underlie approach and avoidance behavior, and their conflict. He believes that such fundamental systems hold wide-spread importance across the whole landscape of psychological phenomena.

Philip has worked extensively with the Reinforcement Sensitivity Theory (RST) of personality, and in 2008 he edited a book by this title. He has worked alongside Professor Neil McNaughton (Otago University, Dunedin, NZ) on developing this neuropsychological approach to personality (e.g. Corr & McNaughton, 2012), first formulated by Professor Jeffrey Gray in the early 1970s. This theory proposes that at the basis of personality – and its links to internalizing and externalizing mental disorders – are three systems: one positive, the Behavioral Approach System (BAS); and two negative, the Fight-Flight-Freeze System (FFFS) and the Behavioral Inhibition System (BIS). The BAS is activated by appetitive (attractor) stimuli; the FFFS by aversive (repulsor) stimuli; and the BIS by conflicting stimuli (e.g. co-activation of FFFS and BAS). This general theoretical framework has increasingly been seen as offering an integrative model for the neurobiology of personality and, also, psychopathology. A theoretically faithful questionnaire of revised RST has been developed by Philip and Andrew Cooper (Goldsmiths, University of London, UK; Corr & Cooper, 2016), which was some 10 years in the making and, if nothing else, attests to the doggedness of Philip's research strategy and, where appropriate, the desire not just to publish to get a quick academic "fix."

Philip has applied his neuroscience-informed individual differences approach to many specific areas of psychology, including psychopathology (Corr & McNaughton, 2015); consciousness (Corr & Morsella, 2015); perfectionism (Stoeber & Corr, 2015); laterality (Beaton, Kaack, & Corr, 2015); social attitudes (Corr, Hargreaves-Heap, Russell, Tsutsui, & Seger, 2013); gambling (Corr & Thompson, 2014); psychopharmacology (Perkins, Ettinger, Weaver, Schmechtig, Schrantee, Morrison, Sapara, Kumari, Williams, & Corr, 2013); psychophysiology (Andersen, Moore, Venables, & Corr, 2009); health psychology (Kalogreades & Corr, 2011); creativity (Burch, Pavlis, Hemsley, & Corr, 2006); occupational performance (Corr, McNaughton, Wilson, Burch, & Poropat, 2017); and neuroimaging and genetics (Ettinger, Corr, Mofidi, Williams, & Kumari, 2013). A major recent theme has been to work toward integrating personality and (especially behavioral) economics (Ferguson, Heckman, & Corr, 2011).

Much of Philip's work combines an experimental approach with individual differences in personality and cognitive variables. This follows the course of trying to combine these two major schools of psychology, as outlined by Cronbach's, 1957, American Psychological Association Presidential Address. This scientific perspective contends that a truly unified psychological science needs properly to consider both sides of this perspectival scientific coin. To achieve this end, there needs to be a revival of the generalist in psychology, which Philip's research typifies.

See Also

Behavioral Inhibition/Activation, Personality Correlates of
Biological Models of Personality – Neurological
Biological Models of Personality – Psychophysiological
Jeffery A. Gray
Hans Eysenck

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John M. (Jack) Digman

Lewis R. Goldberg and Sarah E. Hampson

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Jack Digman spent most of his boyhood in Cincinnati, Ohio; he attended Ohio State University, where he obtained his BA in 1948 and his PhD in 1951, both in experimental psychology. From 1951 to 1991, he taught in the Psychology Department at the University of Hawaii, where he served as president of its faculty senate in 1966–1967. He was an early member of the Society of Multivariate Experimental Psychology, and served as its president in 1978–1979. Upon his retirement from the faculty in Hawaii, he became a research scientist at the Oregon Research Institute in Eugene, Oregon, where he worked with the two authors of this biography.

Digman was hugely influential in popularizing the five-factor model of personality structure, in part through his own seminal work on teachers' ratings of child temperament, in part through his creative re-analyses and syntheses of other studies of personality structure, and in part because of his influential essays on the history of the five-factor model. Digman left another invaluable legacy in the form of the teachers' ratings of child personality traits which became available for use by others, and which were used to form the childhood database for the ongoing Hawaii Personality and Health Longitudinal Study.

From 1959 to 1967, Jack persuaded 88 elementary school teachers on the Hawaiian islands of Oahu and Kauai to rank-order each of their students on around 50 personality traits at the very end of the school year. The resulting detailed descriptions of over 2,400 children forms one of the most comprehensive collections of children's personality traits ever obtained. For information about the exact methods and the specific traits used in each of his six samples, see Goldberg (2001).

In preliminary analyses of portions of this rich data-set (Digman & Takemoto-Chock, 1981; Digman & Inouye, 1986), Jack became convinced of the usefulness of the five broad personality factors (Digman, 1989) that would later be labeled by Goldberg (1990) as the Big Five factor structure. Digman's findings from these preliminary analyses, plus the findings from analyses of other data sets by Goldberg, led Costa and McCrae to expand their initial three-factor NEO inventory to include the five-factor structure included in the

NEO-PI-R. With a Russian colleague, Digman explored the structure of temperament and personality in Russian children (Digman & Shmelyov, 1996). In one of Jack's final publications (Digman, 1997), he espoused a higher-level two-factor structure that has become a useful addition to the five-factor models. In addition, his historical accounts of the development of the Big Five model (Digman, 1990, 1996) have been widely cited.

Over the years, Jack's colleagues encouraged him to conduct a follow-up of the participants in his studies of childhood personality traits, so as to be able to study the stability of the Big Five personality traits from childhood to adulthood and their relation to life outcomes. By the mid-1990s, there was an additional motivation. Howard Friedman and his colleagues had recently published their remarkable findings from the Terman Life-Cycle study, showing that conscientiousness at age 11 predicted longevity (Friedman, Schwartz, Tomlinson-Keasey, Tucker, Martin, Wingard, & Criqui, 1995). A follow-up of Digman's childhood samples would enable the study of the processes by which childhood personality traits influenced health and mortality. Together, these arguments proved persuasive, and in 1998 he was awarded a research grant from the National Institute of Mental Health to find the members of the original childhood samples, by then in their 40s, and recruit them for new studies. Tragically, Jack Digman died shortly after receiving this award.

Despite this setback, others took up the program of research he envisioned. This study, now known as the Hawaii Longitudinal Study of Personality and Health, has continued for the past 20 years and is ongoing. When Digman collected the childhood personality data, he had no plans to maintain contact with the children over the long-term. Consequently, the effort to find the members of his childhood samples, now adults, was limited to first and last names and their elementary schools as a starting point. Nevertheless, over 80% of the original children have now been located and over 70% of those agreed to take part in follow-up studies (Hampson, Dubanoski, Hamada, Marsella, Matsukawa, Suarez, & Goldberg, 2001). The participants are representative of the ethnic and cultural diversity of classrooms back in the 1960s, providing a rare opportunity to study minorities such as Native Hawaiians, Part-native Hawaiians, and Japanese Americans. Follow-up research, using questionnaires and in-person medical and psychological assessments, has yielded a number of contributions to topics in personality psychology, two of which are highlighted here: personality stability and personality and health.

Personality stability is a basic assumption of trait theory. Yet, the degree of stability of personality over the lifespan, and particularly over important development periods, such as from childhood to adulthood, has been controversial. The Hawaii study, with comprehensive Big Five measurement in childhood and Big Five factors assessed 40 or more years later using self and observer reports, is well-placed to examine personality stability across the lifespan. Contrary to previous conclusions, the Hawaii study demonstrated that the Big Five traits are not all similarly stable (Hampson & Goldberg, 2006; Edmonds, Goldberg, Hampson, & Barckley, 2013). Whereas extraversion and conscientiousness exhibited substantial stability, emotional stability exhibited virtually no stability at all.

Among longitudinal studies of personality and health, the detailed childhood personality assessments obtained by Digman, and the length of follow-up of living participants, are unparalleled. With these data, the Hawaii study has advanced knowledge on

a number of fronts. The association between childhood conscientiousness and longevity demonstrated in the Terman Life-Cycle study suggested that a corresponding association with middle-aged health would be observed; more conscientious individuals should be in better health than those who are less conscientious. The Hawaii study supported this hypothesis, using both self-reported health and objective clinical biomarkers obtained at a medical examination (Hampson, Edmonds, Goldberg, Dubanoski, & Hillier, 2013). None of the other childhood Big Five factors predicted subsequent health status. Participants provided repeated assessments of their health-enhancing and health-damaging behaviors such as physical activity, dietary choices, and smoking. Their health-damaging behaviors mediated the association between childhood conscientiousness and middle-aged health status, along with educational attainment and cognitive ability (Hampson, Edmonds, Goldberg, Dubanoski, & Hillier, 2015). This finding added to existing support for a health-behavior model to explain associations between personality and health, and demonstrated apparently far-reaching effects of childhood personality on these behaviors over the lifespan.

A challenge for any longitudinal study is to anticipate which measures will prove useful in the future. The Hawaii study continues to benefit from Digman's perspicacity in appreciating the importance of a comprehensive childhood personality assessment. The study also benefits from the collection of a wide range of self-report and biological data, without necessarily knowing where such data may lead. A telling case in point was the decision early on to obtain dried blood spots for future genetic analyses. DNA was extracted from these samples and assayed for leukocyte telomere length, a marker of cellular aging. Less conscientious children were more likely to have higher body mass and to smoke, and these mediators were associated with shorter telomere length, indicating greater cellular aging (Edmonds, Hampson, Côté, Hill, & Klest, 2016). Without the comprehensive childhood personality assessments obtained by Digman, these far-reaching influences of childhood personality would not have been discovered. In the future, this study will provide insights into cognitive and physical resilience as participants enter their seventh and eighth decades.

Jack Digman died on May 25, 1998 of a cerebral hemorrhage; he was anticipating his 75th birthday on June 14th. As a scientist, Jack was most interested in the personality dimension labeled Conscientiousness, but as a human being he personified the factor of Agreeableness. We know of no one in the world who was so universally viewed as considerate, warm, kind, gentle, good-natured, peace-loving, helpful, conciliatory, good-hearted, modest, patient, tolerant, sympathetic, co-operative loyal, and agreeable. In a world that includes snakes and vultures, Jack Digman was one of the rare panda bears.

See Also

Big Five
Conscientiousness
Longitudinal Research
Personality Development Across the Lifespan
Personality Stability and Change Over Time

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John E. Exner, Jr.

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Few psychologists are known for a lifetime worth of achievements in both research and clinical training. John E. Exner, Jr. (1928–2006) was one of those exceptional individuals. His work amounts to an impressive collection of writings and countless conference presentations about his innovative ideas and groundbreaking research on the Rorschach Inkblot Test. He also made noteworthy contributions to the training of clinical psychologists around the globe and, independent of his written work, left an undeniable mark in the field through his extensive teaching and mentoring of clinicians in beginning and advanced stages of training. Exner embodied the professional values and identity of a true scholar-practitioner. He was a fine clinician, with exceptional assessment skills, dedicated to the pursuit of scientific discoveries with direct and relevant applications to clinical practice. This biographical entry describes highlights of Exner's life history, career trajectory, and contributions to the field of personality assessment through his brilliant and tenacious work with the Rorschach Inkblot Test. He is credited with having developed a comprehensive system for interpreting the Rorschach that integrates the best features of previous interpretative systems. His efforts revitalized interest in the test, and raised the standards for contemporary research and clinical practice with projective assessment measures.

John E. Exner, Jr. was born in 1928, in Syracuse, New York. He began his studies in psychology at Trinity University, a private liberal arts institution in Santo Antonio, Texas. His bachelor of science and master of science degrees were completed at Trinity, and he subsequently went on to pursue a doctorate at Cornell University in Ithaca, New York. He earned his PhD in clinical psychology from Cornell in 1958. Exner's early years as a clinical psychologist were spent as faculty at De Pauw University in Greencastle, Indiana; and as department chair at Bowling Green State University in Ohio. In 1968, he took a year's leave of absence from Bowling Green to direct the Peace Corps Office of Selection for the Africa, Near East, and South Asia regions; and in 1969, he joined the faculty at Long Island University (LIU). Exner was director of Clinical Training at LIU from 1969 to 1979, and is credited with being one of the founders of the LIU's doctoral program in clinical psychology. He retired from LIU in 1984 as professor emeritus, and dedicated his remaining years to the

Rorschach Workshops, a foundation he established to continue his research and training activities on the Rorschach Comprehensive System. Exner died in 2006, at the age of 77.

Exner's fascination with the Rorschach Inkblot Test begun in 1953, when he first laid hands on the test, and continued vibrant for the next five decades of his life. His earliest publication came out of his doctoral dissertation, in 1959. The article reported the results of an experiment he conducted while in graduate school in which color-modified cards were used to determine the influence of chromatic and achromatic color in test responses. The influence of color remained the focus of Exner's early publications but as he continued his research, efforts to understand, describe, critique, and integrate existing systems of interpretation of the Rorschach became central to his work. In 1969, Exner published *The Rorschach Systems*, a book describing five leading interpretative approaches developed by early Rorschach systematizers (Beck, Klopfer, Hertz, Piotrowski, and Rappaport-Schafer). It was not until 1974, however, that he introduced his own interpretative approach with the publication of *The Rorschach: A Comprehensive System*. His method capitalized on the strengths of previous systems and helped invigorate a field that had been struggling with keeping projective tests relevant in clinical practice.

Exner's publications date from 1959 to 2007. He wrote 14 books and dozens of journal articles about the Rorschach Inkblot Test during his entire career. His last publication, released posthumously in 2007, reported Rorschach data collected with a large non-clinical sample of individuals living across the United States between 1999 and 2005. Exner received many honors throughout his long and fruitful career, including the prestigious Bruno Klopfer Award in 1980, the Walter G. Klopfer Award in 1989, and the American Psychological Association Award for Distinguished Professional Contribution in Applied Research in 1998. He was active in national and international professional associations, and known as a leader in his field. He served as president of the Society for Personality Assessment (SPA) from 1974 to 1975, member of the Board of Trustees of SPA from 1987 to 1989, and was also president of the International Society of the Rorschach and Other Projective Methods, among other distinguished appointments. In 2010, as a testament to his commitment to mentoring students and young scholars, the SPA established a new award in Exner's name, to recognize and support the research of future generations of personality assessment investigators.

See Also

Projection Techniques, General Features and Methodological Issues
Rorschach Test
Unconscious Processes, Expression of Personality Process

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Oliver P. John

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Background

Oliver Peter John was born on February 9, 1959. At the age of 18, John undertook a Bachelor's degree with a double major in economics and psychology at the University of Bielefeld in Germany in 1977. Following the successful completion of his undergraduate studies, John's passion for the field of psychology drove him to obtain a 12-month Fulbright Exchange scholarship to the University of Oregon in the USA in 1980. John returned to the University of Bielefeld to complete a Diploma of Psychology, but did not stay in Germany long before returning to the University of Oregon to begin his Doctor of Philosophy degree in social and personality psychology in 1983. Even before John had completed his PhD, he began to publish prolifically in the area of personality and the measures used to assess it. Further to this, John began to investigate the differences in the descriptive terms psychologists were using to describe personality in an article titled "Better than the alphabet: Taxonomies of personality-descriptive terms in English, Dutch, and German" (1984). In 1984, John was awarded the Bowerman Foundation Scholarship, which was presented to deserving recipients residing in Eugene, Oregon, which coincided with the William Stout award from 1984 to 1985. In 1986, John was offered a visiting assistant research psychologist position at the University of California Berkeley. Following this, John became an assistant and associate research psychologist within the Institute of Personality and Social Research at UC Berkeley as well as being awarded the position of assistant and associate professor within the Department of Psychology, a position he held for 10 years. John remained linked to his previous university, taking a position as an adjunct research scientist within the Oregon Research Institute between 1987 and 1992. Following this, John's work was noted as one of the top 25 most cited authors between 1990 and 1994. Furthermore, his consistent work ethic saw him obtain membership to the Society of Multivariate Experimental Psychology as well as the Personological Society and he was an invited scholar to the University of Michigan in 1994 and awarded as a Kurt-Lewin Fellow within the

University of Groningen in the Netherlands also in 1994. In 1995, at the conclusion of his associate professor role, Oliver P. John was made the acting director for the Institute of Personality and Social Research, University of California, Berkeley, until 1997. In 1999, John was awarded the position of professor at and has maintained his role at UC Berkeley until today.

Major Contribution: The Big Model of Personality Traits

In 1991, Oliver P. John, E. M. Donahue, and R. L. Kentle created version 4a and 4b of the Big Five Inventory – a self-report inventory designed to measure the five dimensions of personality as derived from previous work in the field by Cattell (1943), Comrey (1970), Wiggins (1979), Jackson (1984), Gough (1987), Myers and McCauley (1985), Hogan (1986), Tellegen (1982), Tellegen et al. (2003), Saucier and Ostendorf (1999), and Costa and McCrae (1992).

The Big Five Inventory has since become one of the most widely used assessments of personality in the world. Its structure is purposefully easy to understand so as to avoid bias toward any particular personality design structure. It is atheoretical, in that it allows the description of traits to be perceived in a non-dimensional manner providing a broader outlook upon each personality dimension.

The Big Five Inventory (BFI) is now a brief, multidimensional personality inventory consisting of 44 items in total composed of short simple phrases making it more accessible to the broader population. It is also available in 10 different languages and outcome data can be compared to sample means and standard deviations as described by John and Srivastava (1999, 2003). The BFI also comes in a shorter 11-item version, however, the complete version requires only five minutes to complete and remains the recommended inventory to use.

Other Notable Works: Emotion Regulation and Expressive Behavior

Oliver P. John has also worked in the field of emotional regulation and differences in individuals. His work, with psychologist James J. Gross, demonstrated the importance of individual differences in emotion and expressive behavior and the way these domains determine how an individual functions in social contexts (Gross & John, 1998). Through this work, John and Gross developed a measure denoted the Emotion Regulation Questionnaire (ERQ) that determines the level to which an individual will *express* positive or negative emotions and the relationship that outcome has to their *experience* of positive and negative emotions. They denoted the two categories of people as *reappraisers* and *suppressors*. Those who were characterized as reappraisers experience and express greater positive emotion and less negative emotion, whereas suppressors

experience and express less positive emotion but experience greater negative emotion. These findings indicated that as a person matures, the more they utilize reappraisal strategies, the better their emotional regulation became. This research was further extrapolated into the social context of living relationships investigating what is called *emotional convergence*. People with similar emotionality would be more likely to converge and have a mutual understanding and social cohesion and therefore, would be more likely to remain in that cohesive partnership, with a lower likelihood of their partnership dissolving.

This work highlights the impact of emotional mechanisms individuals tend to employ at a younger age and whether those mechanisms are more or less likely to strengthen an individual's ability to regulate their emotions as an adult.

Acknowledgments and Awards

Oliver P. John, PhD, is professor of psychology and research psychologist at the University of California, Berkeley, where he is also acting director of the Institute of Personality and Social Research. Dr. John has won the Distinguished Teaching Award from Berkeley's College of Letters and Science, the Theoretical Innovation Prize from the Society for Personality and Social Psychology, the Best Paper of the Year Award from the *Journal of Research in Personality*, and the Cattell Award for Early Career Contributions from the Society of Multivariate Experimental Psychology. In more than 90 articles and three books, Professor John has examined personality structure, emotion regulation, and self-perception, as well as their measurement and the methodological issues with that measurement.

Conclusion: Personality and Individual Differences

Professor Oliver P. John contniues his work at UC Berkeley as the director of the Berkeley Personality Laboratory. He continues to publish on the Big Five Inventory (BFI-2) with recent publications on the German adaptation of the inventory. He continues to work on the taxonomy of psychotherapy in various contexts including alcohol use disorders, with a specific focus on emotion regulation skills and reinforcing them through therapy. He is currently the co-principal investigator of the Mills Longitudinal Study, a 50-year long investigation of adult development that has been following a cohort of women since their graduation from Mills College in the 1950s. There are approximately 100 participants still in the study that started with 140, with 123 followed up. John examines the developments in the participants' personality, emotional experience, as well as emotional expression and regulation. To date, John continues to update his work on the Big Five Inventory. His work continues to be some of the most influential in the field of personality and individual differences around the world.

See Also

Big Five
Eysenck Personality Questionnaire-Revised (EPQ-R)
Factor Analysis in Personality Research
FFM and Facets
Goldberg vs Costa/McCrae Five Factors
Lewis Goldberg
Paul T. Costa, Jr.
Robert McCrae
Raymond B. Cattell

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Henry A. Murray

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Henry Alexander Murray (1893–1988) was an American psychologist who taught at Harvard University for over 30 years. Murray served as the director of the Harvard Psychological Clinic beginning in the 1930s and was the founder of the Boston Psychoanalytic Society and Institute. Murray's work at Harvard played a substantial role in reshaping the landscape of American psychology. In particular, Murray was instrumental in expanding the horizon of academic psychology to include areas of research yet to be explored such as personality, abnormal, and clinical psychology. As such, Murray was a pioneer in the field of psychology and his work continues to be the foundation of much research today.

Although Murray made many contributions to the field of psychology, his greatest contribution was in personality theory. The publication of *Explorations in Personality: A Clinical and Experimental Study of Fifty Men of College Age* in 1938 marked the beginning of Murray's identity as one of America's leading personality theorists. The publication of this book was Murray's crowning accomplishment as an early career psychologist and set the foundation for his future research on personality. Another major achievement made by Murray was his development of the Thematic Apperception Test (TAT), which continues to be one of the most widely used and researched projective personality tests.

Before Murray's debut into the field, systematic research on personality was scarce. Topics such as abnormal psychology and psychotherapy were regarded to be outside the realm of American academic psychology. Murray served as a channel through which European personality and clinical theories would become an integral part of American academic psychology. Murray's unique academic training in medicine, biochemistry, and Freudian and Jungian psychology permitted him to approach personality psychology from an interdisciplinary perspective, as well as provide a unified structure of psychoanalysis that could be investigated holistically.

Childhood and Early Education

Murray was born on May 13, 1883 in New York City to a wealthy, conservative family and was the second of three children. Receiving an inheritance from his grandfather, Murray lived a life of ease while growing up on the Eastern seaboard. Murray spent many of his summers on Long Island beach and made four long trips traveling to Europe with his parents. Most of Murray's early recollections center on his privileged background. Only a few of his early childhood experiences would impact his later career decision.

One event that helped to shape Murray's future career choice was his exposure to family members with psychiatric illnesses of varying degrees and severity. Murray had two aunts that suffered from psychological illnesses and a mother who was overly prone to migraine headaches. Murray's relationship with his two aunts made him more sensitive to emotional problems and disturbances. Another event that impacted Murray's future career was his emotional detachment from his mother. Murray described his mother's emotional detachment and proneness toward his siblings as the source of his lifelong depression, a condition that would eventually form the center of his theory.

Murray later received an education at some of the most exclusive private schools on the Eastern seaboard. After attending Groton, a preparatory institution, Murray went on to attend Harvard in 1911 where he remained largely undistinguished as a history major. After graduating from Harvard in 1915, Murray attended medical school at Colombia University in New York where he found himself serious about his studies for the first time. During his first year of medical school, he married Josephine Rantoul and had one child, Josephine Murray, who became a pediatrician in Boston. During his time at Colombia, Murray completed a MA in biology and a MD degree, which was followed by a 20 month surgical internship at Presbyterian Hospital in New York. Murray went on to study biochemistry at Cambridge University where he completed a PhD in 1927.

Transition to Psychology and Psychoanalysis

In 1923, during his tenure at Cambridge, Murray read Carl Jung's *Psychological Types* which would serve as the catalyst for his interest in psychology. Murray's sudden fascination with Jungian psychology led him to read all of Jung's published writings and eventually write to Jung in the hope of a possible visit. In 1925, Murray met with Jung for three intense weeks in Zurich, Switzerland, where his psychological interest and adeptness increased. Also, Murray's interest in psychology and personality was further spurred on by his acquaintance with Christina Morgan, an artist who shared many interests with Murray including a fascination with Jung, the unconscious, and the writings of Herman Melville. This relationship continued throughout Murray's lifetime and was influential in Murray's transition to psychology.

During his three weeks with Jung, Murray analyzed much material that had been released due to his increasing awareness of the feminine-intuitive aspect of his personality. This feminine aspect of personality contrasted the masculine, logical, and scientific aspects that were usually emphasized in his medical and biochemical research. Murray eventually made the decision to leave the field of biochemistry and pursue a professional career in

psychology. However, Murray was not someone who would abandon prior commitments. Before he could make the transition to psychology, he first needed to finish his doctoral studies in biochemistry and would go on to publish three more articles on developmental embryology.

Given his time with Jung, coupled with the aforementioned factors that contributed to his interest in psychology, Murray viewed 1925 as his rebirth. He returned to America with the goal of combining his medical training with academic psychology. Murray's transitioning career interest was first seen in an article he wrote for *The Independent* in 1926. The article reviewed published manuscripts in psychology and focused almost exclusively on abnormal psychology. The article centered primarily on Freud's *Collected Papers* and Jung's *Psychological Types*, both of which regarded various aspects of abnormal psychology. Thus, Murray's new professional identity as an aspiring psychologist was being established. He eventually made the decision to become a psychotherapist and conduct research on psychopathology in clinical and hospital settings. In 1926, the President of Harvard, A. Lawrence Lowell, invited Murray to be an assistant to Dr. Morton Prince in the newly formed Harvard Psychological Clinic, where Murray spent many years conducting research and developing his theory of personality.

The Harvard Psychological Clinic

In the fall semester of 1926–1927, psychologist Morton Prince established the Harvard Psychological Clinic to study abnormal psychology and personality. Prince believed that abnormal psychology needed to be separated from the medical discipline of psychiatry. He felt that research needed to advance the study of psychopathology would take a backseat to practical concerns associated with medical school, such as running a hospital or psychiatric facility. Initially, Prince was the only faculty member in the clinic but with a recommendation from a colleague and the approval of faculty, Murray was hired as his research assistant. By the spring of 1928, Prince's health had declined which forced him into retirement. This meant that Prince would have to choose a successor. The clinic's endowment required that the director be an experienced physician and psychologist trained in laboratory methods. Because Murray met these criteria, along with two years as Prince's assistant, he was considered the most appropriate person for the job.

However, Murray's appointment as director of the clinic was not without controversy. Other faculty members questioned whether Murray was the best successor to Prince. Edwin G. Boring, who initially supported Murray's appointment as research assistant, led the opposition against his advancement to director. One reason for this controversy was that Murray's PhD was in biochemistry rather than psychology. Also, Murray's newly found fascination with Jungian and Freudian psychology caused others to doubt whether he would possess the scientific rigor needed to operate the clinic. Boring argued for someone else to be appointed director, namely, someone who would not only meet the clinic's endowment requirements but better fit his own experimental orientation. Nevertheless, the final decision was up to President Lowell who sided with Prince in appointing Murray as director. In the 1928–1929 academic year, Murray was appointed as assistant professor and director of the clinic.

At the Harvard Psychological Clinic, Murray believed that academic psychology was misguided at the time and made every effort to further learn about psychoanalysis. Murray helped to form the Boston Psychoanalytic Society in 1928, took a nine-month training appointment to study psychoanalysis under Alexander Franz in 1931–1932, practiced psychoanalysis under the supervision of Hanns Sachs, and became a member of the American Psychoanalytic Association in 1933. For Murray, psychoanalysis became the core framework that would drive his research and theory.

In the 1930s, Murray and Morgan developed the Thematic Apperception Test (TAT), a projective test that assessed individual personality and self-understanding. Although Murray is generally credited for the development of the TAT, it was actually Morgan who did most of the work. Despite Morgan's substantial contribution to the development of the TAT, her name was eventually dropped from the publication. This decision was agreed upon by Murray who was left as the sole author. The TAT became a best-seller for the Harvard University Press and continues to be one of the most widely used projective personality measures today.

In 1938, Murray established his identity as a leading personality theorist with the publication of *Explorations in Personality: A Clinical and Experimental Study of Fifty Men of College Age*. The book presented in detail Murray's dynamic conception of personality as the study of individuals' lives and emphasized his elaborate taxonomy of needs and characterization of persons and human transactions. The most important component to this work was Murray's reliance upon psychodynamic theories as the foundation for many of his concepts. Murray strongly contended that psychoanalysis was the only viable approach to the science of psychology that addressed totality and complexity of human behavior. Another central component to this work was the use of the Diagnostic Council of senior researchers to integrate multiple perspectives on each subject provided by the contributing researchers. Each researcher in the Diagnostic Council served as a medical specialist who critiqued the personality formulations by the other council members, as well as responded to critiques of others. Eventually, the goal was to converge on an analysis of personality that was accepted by all. Overall, this classic publication secured Murray's status as a leader in the systematic, holistic, and dynamic study of personality.

Theory of Personality

Murray's system of personality, known as *personology*, stemmed from his interdisciplinary background in biochemistry, medicine, and psychoanalysis. Murray's personology was developed on five core principles that served as a guiding framework for the rest of his theory. Although Murray's personology system is complex and consists of many elements, the five core principles remain at the center of the theory and its development.

The first principle of personology suggests that personality is ultimately rooted in the brain. As such, a person's cerebral physiology guides and determines every aspect of personality. Everything on which personality ultimately depends is found in the brain including: emotional states, memory, conscious/unconscious states, beliefs, attitudes, values, and fears. Thus, it is the brain that dictates what an individual's personality is, as well as what it might be should the brain be altered in any way.

A second component to Murray's system is the concept of tension reduction. Murray concurred with Freud and other theorists that people act to reduce physiological and psychological tension. However, people do not strive to achieve a tension-free state; rather, it is the process of acting to reduce tension that brings satisfaction, not attaining a state where all tension is absent. Murray contended that a tension-free state is actually a source of distress. According to his theory, people need excitement, movement, motivation, and activity in their lives. Each of these needs increase tension which people then act upon in an effort to reduce it. For Murray, the ideal state of human nature is to always have a certain level of tension to reduce.

A third core component of Murray's personology is the idea that personality continuously develops over time and is composed of all the events that happen over the course of a person's lifetime. Therefore, in order to understand personality, it is critical to consider the past and how it shapes the individual personality over time.

A fourth component of Murray's system is that personality is always changing and is never static or fixed. Therefore, an individual's personality at one point in time will almost certainly be different from personality at a later point in time. This notion of a constantly changing personality continues to be of interest to personality theorists today.

Fifth, Murray acknowledged the uniqueness of individual differences while also noting the similarities that all people share. Thus, Murray emphasized a tripartite component to individual personality: individual human beings are like no other people, like some other people, and like all other people. This model of individual personality recognized the importance of universal similarity, cultural specificity, and individual uniqueness.

Divisions of Personality

Along with the five core principles of personology, Murray divided personality into three components: the id, ego, and superego. Although Murray expressed these components in Freudian terms, they differed from Freud's traditional conceptualization in a variety of ways.

According to Murray, and similar to Freud, the id represented the source of all innate and impulsive tendencies. Thus, the id consisted of the lustful, unprincipled, and primitive impulses of human behavior. However, Murray differed from Freud in suggesting that the id also entailed innate impulses that society deemed desirable. For example, Murray contended that the id entailed tendencies to empathy, love, mastery of one's environment, and identification. As such, the influence of Jung can be seen in Murray's concept of the id. Jung's *shadow archetype*, which encompasses both positive and negative aspects, seemed to play an important role in Murray's conceptualization of the id. For Murray, the power of the id varies from person to person and manifests itself differently among individuals.

The superego represented an internalization of cultural values and norms. According to Murray, the superego is responsible for how individuals come to judge and evaluate their behavior and the behavior of others. The superego is mostly developed in early childhood by the imposition of the parents and other authority figures. However, unlike Freud, Murray believed that the superego was influenced by cultural factors and not limited to the child-parent interaction. Also, Murray deviated from Freud in his contention that the superego continued throughout one's lifetime and grew more complex as one got older.

Finally, Murray disagreed with Freud in that the superego was not in constant conflict with the id. Rather, because the id consisted of both positive and negative aspects, such positive aspects did not have to be suppressed.

The ego served as the logical and rational overseer of individual personality. When the id manifested negative impulses or tendencies, the ego's primary job was to delay or modify such impulses. Also, the ego was seen as the arbiter of the id and the superego, and could favor either one. For example, if the ego favored the id then behavior may be directed toward a life of negative behavior. On the other hand, if the ego favored the superego then behavior may be directed in a more positive or socially acceptable manner. For Murray, the ego can also combine these two aspects of personality so that what we desire (the id) is in agreement with what is deemed socially acceptable (the superego). Thus, Murray's concept of the ego was an extension of Freud's in that it served as the central organizer of behavior. He contended that the ego could reason, rationalize, and decide the ultimate direction of behavior.

Motivators of Behavior

One of Murray's most valuable contributions to personality theory was his notion of the use of needs to motivate and direct individual behavior. According to Murray, needs arise from physicochemical processes in the brain that organize and guide perceptual and intellectual abilities. Such needs can originate from internal processes such as hunger or thirst, as well as environmental stimuli. Because Murray believed that the ideal state was to reduce tension, he argued that needs bring about a level of tension which the person attempts to reduce by acting in a manner that will satisfy the needs. Thus, these needs motivate behavior and guide it in the appropriate direction that will eventually lead to the needs being satisfied.

Through his research, Murray formulated 20 needs. Each of these needs motivates behavior and varies according to individuals. Throughout one's lifetime, a person can experience all of these needs or only experience some of them. Murray divided his system of needs into four basic categories: primary needs, secondary needs, reactive needs, and proactive needs.

Primary needs (viscerogenic needs) stem from internal bodily states and entail survival needs such as hunger, thirst, sex, and air. Secondary needs (psychogenic needs) arise indirectly from primary needs and include states such as emotional satisfaction or achievement. For Murray, secondary needs are not necessarily less important than primary needs but are called secondary because they ultimately arise from the primary needs.

Reactive needs are concerned with responses that occur due to specific stimuli in the environment and only take place when such stimuli are present. For example, the need to avoid harm is only present when a threat is presented. Proactive needs, on the other hand, do not depend on stimuli in the environment. Rather, proactive needs occur spontaneously whenever they are aroused without the presentation of certain stimuli. For example, if a person becomes hungry, the individual will begin to look for food without influence from the external environment.

Personality Development in Childhood

Drawing from Freudian theory, Murray divided childhood into five developmental stages. Each stage influences individual personality by leaving a mark on it in the form of an unconscious complex. According to Murray, all people experience these five complexes because everyone goes through the same developmental stages. Each complex is posited to influence behavior and direct later development.

The first stage of development is known as the claustral stage. During this stage, the fetus in the womb is secure, at peace, and dependent. Complexes that may occur during this stage include the simple claustral complex, insupport complex, and the egression complex. The simple complex regards a desire to be in small, dark, and secluded places that make one feel safe and secure. Individuals with this complex are generally dependent upon others, passive, and are oriented toward behaviors that are safe and have proven effective in the past. The insupport complex regards individuals who experience feelings of insecurity that cause them to fear open places, drowning, tornados, fires, or any situation that requires mobility or change. The egression complex regards individuals who have a need to escape womblike conditions. For example, people with this complex may fear confined and restricted situations, and it will manifest itself by a preference for open places or mobility.

The second stage of development is known as the oral stage. The oral stage is associated with three accompanying complexes: oral succorance complex, the oral aggression, and the oral rejection complex. The oral succorance complex regards an amalgamation of mouth activities, passivity, and the need to be supported or protected. Manifestations of this complex involve behaviors such as kissing, sucking, eating, sympathy, and love. The oral aggression complex is a union of oral and aggressive behaviors. Manifestations of this complex may be biting, screaming, spitting, and sarcasm. The oral rejection complex regards behaviors such as vomiting, eating small amounts of food, seclusion, and avoiding dependence upon others.

The third stage of development is the anal stage and is associated with two complexes: the anal rejection complex and the anal retention complex. The anal rejection complex regards a preoccupation with defecation, anal humor, and feces-like substances such as dirt or mud. According to Murray, people with this complex are often aggressive and engage in activities such as throwing things, firing guns, or setting off explosives. Also, individuals who experience this complex are often dirty and disorganized. On the other hand, the anal retention complex is characterized by saving, collecting, cleanliness, and neatness.

The fourth stage of development is called the urethral stage and is exclusive to Murray's system. The urethral complex is characterized by extensive ambition, distorted self-esteem, bedwetting, and sexual cravings. This complex is sometimes called the Icarus complex, named after the Greek mythological figure that flew so close to the sun that the wax keeping his wings together melted. Similar to Icarus, individuals with the urethral complex aim their goals too high and consequentially experience failure and shattered dreams.

The fifth stage of development is called the genital, or castration stage. Murray dissented from Freud's view of this stage which posited that the fear of castration was the main source of anxiety for adult males. Rather, Murray held a more narrow view of this

castration complex. He contended that this complex is characteristic of a young boy's fantasy that his penis might be cut off. For Murray, this fear arises from masturbation in childhood and the parental punishment that could accompany it.

Murray's Later Years

After completing his book *Explorations in Personality: A Clinical and Experimental Study of Fifty Men of College Age*, World War II broke out. During the war, Murray served as a major in the Army Medical Corps and was eventually promoted to lieutenant colonel. Murray developed and organized an assessment program for the Office of Strategic Services, the predecessor of the CIA, where he assessed the psychological fitness of its agents. Murray's program would remain influential in the subsequent practice of personality assessment, especially in industrial-organizational psychology.

After the war, Murray returned to Harvard University. In 1947, at the age of 54, he received a tenured faculty position as well as the title of lecturer in clinical psychology. In 1951, Murray was named professor of clinical psychology. During these post-war years, Murray was influential in the formation of Harvard's interdisciplinary Department of Social Relations which combined the approaches of clinical and social psychology, sociology, and cultural anthropology. Murray retired from Harvard in 1962.

During this time, Murray developed a relationship with anthropologist Clyde Kluckhohn. Together, Murray and Kluckhohn coauthored a 1950 classic text of culture and personality entitled *Personality in Nature, Society, and Culture* (1953). The American Psychological Association (APA) eventually awarded him with Distinguished Scientific Contribution Award in 1961. Murray also received the Gold Medal from the American Psychological Foundation in 1969.

Murray became depressed after his wife's death, his retirement from Harvard, and Morgan's death in 1967. However, Murray found a new outlook on life when he married his second wife Carolina "Nina" Fish, who was co-director of the Psycho-educational Clinic at Boston University's School of Education. Murray's relationship and rich partnership with Fish led to fulfillment in his old age. Murray died of pneumonia on June 23, 1988, at the age of 95.

Overall, Murray's life contributions to American psychology made him a leading pioneer in the field. His unique interdisciplinary approach to psychology contributed to both its theoretical and practical advancement. Murray's seminal papers, theory, development of the TAT, and challenges to traditional schools of psychological thought reshaped the landscape of personality psychology. He left a rich and robust tradition of personology which personality theorists continue to study today.

See Also

Projection Techniques, General Features and Methodological Issues
Thematic Apperception Test

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Jack A. Naglieri

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Jack A. Naglieri, PhD, professor emeritus of psychology at George Mason University, is a prominent figure in the realm of intelligence assessment. After working closely with Alan Kaufman, and further developing his knowledge and expertise within the field of intelligence testing at the University of Georgia, he received his doctorate in educational psychology in 1979. Initially an assistant professor at Northern Arizona State University from 1979–1982, Naglieri next took a faculty position at Ohio State University from 1982–2000, where he was a professor of both school psychology and psychology, co-ordinator of the school psychology program, student advisor, and senior research scientist at the Nisonger Center. In 2000, he joined the faculty of George Mason University, where he was a professor of psychology, director of the school psychology program, and faculty member in their Center for Cognitive Development. He is currently a research professor in the Curry School of Education at the University of Virginia and a senior research scientist at the Devereux Center for Resilient Children.

Over the course of his career, Naglieri has developed numerous psychological tests, become a Fellow of the American Psychological Association's Divisions 15 (Educational Psychology) and 16 (School Psychology), and holds the status as a Diplomate in Assessment Psychology from the American Board of Assessment Psychology. Naglieri has received numerous awards for his work, including the Italian American Psychology Assembly Award for Distinguished Contributions to Psychology (2011), the Senior Scientist Award from APA's Division 16 (2001), the Ohio State University Faculty Research Award (2000), the Ohio School Psychologists Association Bartlett Award (1995), and the Arizona Association of School Psychologists President's Award (1981).

Naglieri is an avid researcher who has investigated several issues in the field of learning and education, including mental retardation, specific learning disabilities, giftedness, Attention-Deficit/Hyperactivity Disorder, IDEA and identification of specific learning disabilities, and cognitively-based mathematics interventions. In order to further understand testing differences among diverse populations, Naglieri has examined race, gender, and ethnic differences in cognitive processing. He has studied the fair assessment of diverse

groups by using non-verbal and neurocognitive processing tests, as well as examined the identification of gifted minorities. He has conducted psychometric studies of tests such as the Wechsler Scales of Intelligence, the Cognitive Assessment System, and the Kaufman Assessment Battery for Children. In recent years, Naglieri's scholarly pursuits have focused on the theoretical and psychometric issues concerning intelligence, cognitive interventions, and the diagnosis of learning and emotional disorders, as well as the theoretical and measurement issues related to the protective factors of resilience.

Naglieri's interest in intelligence testing was significantly influenced by his advisor, Alan Kaufman, at the University of Georgia during his graduate years. Kaufman's knowledge of and experience in test development helped to provide Naglieri with the necessary tools to establish his own tests. Naglieri's initial test publications include the Matrix Analogies Tests, the Draw-A-Person Quantitative Scoring System, and the Draw-A-Person: Screening Procedure for Emotional Disturbance. He has also published the Devereux assessments, including the Devereux Behavior Rating Scale-School Form, the Devereux Scales of Mental Disorders, the Devereux Early Childhood Assessments, and the Devereux Elementary Student Strength Assessment. He published the non-verbal General Ability Scale for Adults in 1997, which was later followed by several other non-verbal ability tests, including the Naglieri Nonverbal Ability Test-Multi Level Form, the Naglieri Nonverbal Ability Test Second Edition, and the Wechsler Nonverbal Scale of Ability. He published the first edition of the Cognitive Assessment System (CAS) in 1997 and published the second edition of the CAS in 2013. Other published tests include the Comprehensive Executive Function Scale and the Autism Spectrum Rating Scale.

Of all of Naglieri's work in test development, it is his collaborative efforts with J. P. Das on the CAS that has evolved into his most ambitious, well-known, and prominent scholarly work (see Naglieri, 2008). Specifically created for children ages 0–5 and 11–18, the premise for the CAS was to develop an intelligence test based on the findings of cognitive psychology and neuropsychology, particularly those of neuropsychologist A. R. Luria (Naglieri, 1996). Luria organized the cortex into two units, motor and sensory, with each of these units consisting of three cortical zones – primary, secondary, and tertiary. It was this model of cortical functioning that Naglieri and Das incorporated into the development of the CAS. The CAS is also founded upon the PASS cognitive processing theory. Its premise is based on the work of Luria and was later further developed by Naglieri, Das, and Kirby in 1994. The PASS outlines an information-processing framework consisting of four processes: planning, attention-arousal, simultaneous, and successive (Naglieri, 1996). These four processes address problem solving, focus, the organization and integration of information, and the memory of sequence or order, respectively, and are captured by the CAS subtests. Therefore, the CAS marks a shift from *g*-oriented measures of intelligence in that it is a measure of processes, not abilities.

The CAS consists of two subtests for each process in the core version of the CAS and three subtests for each PASS cognitive process in the extended version (Naglieri, 1996). The first process, planning, is used to devise and select strategies for problem solving and is captured by the CAS in such subtests as matching numbers and planned codes. The test-taker's strategies for problem solving are evaluated by the administrator through observation and the recorded responses. Attention is the mental process by which there is a selected

focus on a particular internal or external stimulus. Attention processes are measured by CAS subtests such as expressive attention and number detection. Simultaneous processing involves the organization of information into groups. Both non-verbal and verbal sorting is utilized to identify relationships between words and integrate logical and grammatical components of language. The CAS subtests for this section include verbal-spatial relations and figure memory. Successive is the last piece of the PASS theory and involves the memory of sequence or specific order. Word series, sentence repetition, and sentence questions are the CAS subtests that assist in recording this process.

The key benefits of the CAS, compared with traditional intelligence tests, lie in its ability to provide crucial information that aids in the development of educational interventions by highlighting the cognitive processes with which the individual struggles (Naglieri, 1996). This information helps teachers choose interventions for children with learning problems, identifies children with learning disabilities and/or attention-deficit/hyperactivity disorder, and fairly assesses children from diverse backgrounds. The fair assessment of individuals from diverse backgrounds, including different linguistic, racial, and ethnic groups, addresses a particular concern of test bias that intelligence testing has garnered from the public at large since the beginning of its use, making this a remarkable and important test development. Validity ratings of the CAS within minority groups have been found to be high, as have overall reliability ratings for the Core Battery Full Scale CAS within the general population (Naglieri, 2008).

As a result of Naglieri's contributions to the field of intelligence testing through test development, he has also made an impression on the clinical community by applying the knowledge he has gained during the years of test development to the creation of relevant clinical reference materials. These materials provide theoretical explanations of and practical instruction for the administration of some of his widely used tests. They further act as guides in the appropriate and responsible administration of tests that may have great impact on the educational course and development of the children they assess. Naglieri is the sole author of many publications, including *Essentials of CAS Assessment* (1999, 2008), and the first author or co- author of others, including *Assessment of Cognitive Processes: The PASS Theory of Intelligence* (Das, Naglieri, & Kirby, 1994), *Essentials of WNV Assessment* (Brunnert, Naglieri, & Hardy-Braz, 2009), and *Helping Children Learn: Intervention Handouts for Use at School and Home Second Edition* (Pickering & Naglieri, 2010).

Naglieri's contributions have changed the face of intelligence testing and ushered in updated and enhanced intelligence testing options. By applying empirically backed cognitive and neuropsychological research to his process of test development, Naglieri has been able to reinvent traditional methods of capturing intelligence data and, in the process, shape the future of intelligence testing.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Culture Free/Fair Intelligence Test

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Warren T. Norman

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Warren T. Norman (1930–1998), professor emeritus of psychology at the University of Michigan, is a noted social psychologist recognized for advancing professional contributions to the structure of personality and innovative statistical procedures in personality assessment. Norman received a BS in mathematics (with distinction), and MA in statistics, and a doctorate in 1957, all from the University of Minnesota. He held many esteemed visiting professorships, fellowships, and lectureships during his long tenure at the University of Michigan, as with the Oregon Research Institute (1965–1966, 1987), the University of Birmingham in England (1972–1973), the University of Western Australia (1973), and the University of Queensland, Australia (1980). He served as chairman of the University of Michigan Senate and Head of its Department of Psychology. Norman served as the chairman for the Board of Scientific Affairs of the American Psychological Association, and was elected President of the Society of Multivariate Experimental Psychology. He was the youngest person to be appointed to these positions. He served on the Editorial Board for a number of publications, such as the *Annual Review of Psychology, Psychological Bulletin,* the *Journal of Applied Psychology,* and *Organizational Behavior and Human Performance.* He served as a panelist on many occasions for the National Science Foundation, the National Institute of Mental Health, and the U.S. Office of Education, as well as a member of the Research Committee for the Graduate Record Examination. His profound professional service contributions extensively focused on enhancing assessment measurements and testing parameters, which included the American Psychological Association (APA) Committee on Test Standards (1961–1962), the Committee on Test Reviewing of the APA Division of Evaluation, Measurement and Statistics (1964–1967), the APA Committee on Psychological Tests (1966–1967), the APA Committee on Assessment (1968–1969), and the APA Board of Scientific Affairs (1982–1985).

Norman wrote a number of distinguished articles contributing to the structure of personality and innovative procedures on personal assessment; these works have continued to grow in significance for the field of personality research. His 1963 article

in which he advanced a significant theoretical rational and empirical evidence for the "Five Factor Model" of personality (FFM), has become a classic, in personality psychology with citations continuing to increase even five decades after its publication. He further explored and researched the personality-descriptive terms listed by Allport and Odbert in the 1960s. Throughout this process, his objective was to develop a better structured and more rigorous classification of personality traits. He added some newer and more relevant terms and removed terms that had become antiquated. Psychology textbooks typically describe Norman's "Big Five" as the basic dimensions of personality, which is known as the most salient and scientifically compelling early example of what has come to be known as the Big Five factor structure. The key components of the Five Factor Model consist of the following: (1) personality has five dimensions, (2) scores on dimensions will fall along a normal distribution (bell curve), (3) personality is best described by individual traits rather than type groupings, (4) strength of individual scores indicates personality preferences, and (5) people scoring in the midrange prefer a balance of the two extremes for that trait. Norman recognized limitations in prior personality research, as in the conceptual sorting of the trait terms; therefore, he developed a new list of trait descriptive terms from the dictionary. He sets of terms into broad categories and focused his work on those terms that fell into the category he identified as biophysical traits. After considerable work to reduce the set of terms within this category to approximately 1,550 terms, he set out to formulate them. Initially, the terms were sorted into the endpoints of the five factors identified by Tupes and Christal (1961), culminating in 10 groups of words. He then sorted each of the 10 groups of words, which resulted in 75 groups of words. A factor analysis of scores on these groups produced the expected five factors.

The "Big Five" model of personality is a hierarchical arrangement of personality traits in terms of five basic measurements: extraversion, agreeableness, conscientiousness, neuroticism, and openness to experience. Highly extraverted individuals are confident and affable, rather than reticent and reserved. Agreeable individuals are collegial and affable, rather than hostile and impolite. Conscientious individuals are task-focused and orderly, as opposed to distractible and disorganized. Neurotic individuals are prone to experiencing negative emotions, such as anxiety, depression, and irritation, rather than being emotionally adaptable. Finally, highly open individuals have an extensive rather than limited range of interests, are perceptive rather than apathetic to art and beauty, and prefer novelty to routine. The Big Five/FFM was advanced to produce as much of the variability in individuals' personalities as possible, using only a limited set of trait dimensions. Many personality psychologists agree that its five dimensions capture the most important, fundamental individual differences in personality traits and that many other trait models can be analyzed in terms of the Big Five/FFM structure.

Most human personality traits can be condensed to five broad dimensions of personality, regardless of language or culture. These five categories were established by asking thousands of participants hundreds of questions, followed by a statistical factor analysis. It is essential to realize that the researchers did not intentionally search for five dimensions, but that five dimensions developed from their data analyses. In scientific circles, the Big Five is now the most widely accepted and used model of personality. Psychologists use this model of personality as the primary means for understanding and interpreting personality.

The Big Five, or the Five Factor Model of Personality is the most current, valid and reliable personality measurement presently available.

From the mid-1980s to the mid-1990s, the Five Factor Model of Personality (i.e. Big Five) was tested in academic and research communities worldwide and was found to be a superior model to earlier means of explaining and describing behavior. The "Big Five" structure was based on what is called the lexical hypothesis. Norman proposed a novel measure both for identifying impression management in self reports and for formulating scales that would be relatively immune to fabricating such response sets. He demolished what was then called "Deviation Hypothesis," in which subtle test content was equally as useful as obvious content in constructing self-report scales. He was the first to demonstrate the strong relationship between item face validity and empirical cross-validity. Continuing into the present, personality researchers have established the Five Factor Model as the basic paradigm for personality research. More recent comprehensive, digital studies have endorsed the existence of these five factors, demonstrating the variance in personality trait descriptors. To date, considerable research has implemented to substantiate the Big Five. Numerous Big Five questionnaire measures of the traits have been created, suggesting that the factors are not distinct to the study of trait descriptive terms. The five factors have been discovered in diverse cultures from across the world in both adjective and questionnaire analysis. And evidence suggests that they are, at least in part, heritable.

In the late 1950s, Warren Norman, while at the University of Michigan, learned of Tupes and Christal's work. Norman (1963) replicated the Tupes and Christal study, which supported the five-factor structure for trait taxonomy. This contribution is known throughout personality psychology as "Norman's Big Five," and currently referred to as the "Five Factor Model."

The two most outstanding contributions of personality assessment in the decades of the 1960s and 1970s were an article and a book chapter, both written by Warren T. Norman. Within the article, Norman provided in rigorous detail in both algebraic and verbal fashion an analysis-of-variance type of breakdown of the variances, covariances, and correlations that can be used to express facets of the relations among variables, subjects, and the critical interaction between the two. The most recent was proposed for the first time as the actual relation in which most scientists are interested, but which they hardly ever actually measure. This influential aspect of novel thinking predicted the model contribution of "Generalizability Theory" by Cronbach and Gleser, in addition to some of the applications of structural equation, or "causal" modeling.

Professor Norman educated numerous students in the discipline of personality psychology, and assisted many other psychology students in comprehending the technical obstacles of statistical and psychometric procedures. Norman was an internationally distinguished expert on personality structure and on the operation of pioneering statistical procedures in personality assessment. He wrote several seminal articles in these areas, publications that have continued to increase in significance within the field of personality research. Throughout the 1980s and continuing through the present, personality researchers have endorsed the Five Factor Model as the fundamental paradigm for personality research. Subsequent extensive, digital studies have supported the existence of these five factors that explain the variance in personality trait descriptors.

See Also

Big Five
John M. Digman
FFM and Facets
Revised NEO Personality Inventory (NEO-PI-R)

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William Revelle

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William Revelle is a professor of psychology at Northwestern University and an eminent scholar in the study of individual differences in psychological behavior. He earned his doctorate in 1973 from the University of Michigan and attained full professor status at Northwestern University in 1984. Over the last three decades, he has been a member of the Northwestern faculty, serving three terms as chair of the Department of Psychology. Although best known for his pioneering contributions to the development of public-domain tools for data collection and analysis, he has also published numerous influential works on personality theory and experimentally informed findings relating to a wide range of effects in personality, cognitive abilities, and situational determinants of motivation.

  Revelle was born in Washington, DC and raised in southern California. Given the influence of his father, Roger Revelle, a prominent oceanographer and a founder of the University of California, San Diego, it is no surprise that Revelle spent much of his youth near the water – surfing, sailing, and nurturing a passion for science. Revelle spent three of his teenage summers working on oceanographic expeditions, exploring the Pacific and mapping the ocean depths on small ships owned by the Scripps Institution of Oceanography. After early forays of study in mathematics and computer science (both of which have served him well throughout his career), Revelle settled on psychology as an academic major in his senior year of college, with the intention to apply theories of human and animal learning toward computational learning. Shortly after graduating from Pomona College in 1965, Revelle was wed to Eleanor McNown and the two of them moved to Sarawak, Malaysia where they were stationed as volunteers in the United States Peace Corps from 1965 to 1967. Among the many ways in which this experience shaped his thinking, his interest in personality science began in Malaysia, in part because the limited selection at the local English bookstore (100 km away in Brunei) included engaging paperbacks by Hans Eysenck. Motivated by the prospect of applying his knowledge of mathematics to the study of human behavior, Revelle matriculated at the University of Michigan in 1967 to

study among several of the thought leaders in psychology at that time. These included Jack Atkinson, Ted Newcomb, Warren Norman, Dick Nisbett, Clyde Coombs, and Donald Brown (his primary advisor). These mentors were largely dismissive of "situationist" claims against the existence of stable personality traits, and they encouraged Revelle's pursuit of personality research despite the prevailing sentiment of the era.

In 1973, Revelle completed his doctorate and moved with Eleanor and his two young sons from Ann Arbor to Evanston where he quickly established a vibrant research program. His early theoretical work focused on the interactive relationships between personality, motivation, and cognition. This included creative experimental designs and years of extensive theory-testing. In Revelle and Michaels (1976), both time pressure and caffeine-induced arousal were evaluated for interactive effects with Extraversion on tests of verbal ability. The results of this work had important implications for both personality as a field and for Revelle's subsequent research. While there was no evidence for main effects of Extraversion or caffeine on performance, there was evidence for a significant interaction between these variables. Caffeine improved verbal performance for extraverts and impaired performance for introverts. For personality, these findings supported the (now widely acknowledged) notion that the absence of a main effect for personality traits in various situations did not preclude their existence, stability, or predictive power. For Revelle's research program, they precipitated further efforts to specify a theory of how personality interacts with situational stressors to affect complex cognitive performance (Humphreys & Revelle, 1984), including the need to further account for the interactive effects of time of day (Revelle et al., 1980).

A separate but related theme of Revelle's theoretical work has followed from his desire to develop mathematical models of human behavior. These efforts were rooted in the contributions of his mentor and collaborator Jack Atkinson, though Revelle has proposed multiple extensions and refinements to Atkinson's Dynamics of Action theory (Atkinson, 1957) throughout his career (Revelle & Michaels, 1976; Revelle, 1982; Revelle & Condon, 2015). These models can be summarized simply as competing action tendencies which increase or decrease in intensity based on situational cues and consummatory behaviors, respectively. Mathematically, these action tendencies and the resultant action (behaviors) of the individual can be represented by a series of differential equations (the action tendencies), where the maximal action tendency is the behavior enacted by the individual (see Revelle & Condon, 2015 for some caveats).

More recent foci of Revelle's theoretical work have grown out of these earlier themes. One example relates to the development of public-domain, open-source tools for the assessment of cognitive abilities. The "International Cognitive Ability Resource" (ICAR; Condon & Revelle, 2014) uses mathematical models to automatically generate cognitive ability items. Revelle's first attempts at this resulted from the need for cognitive performance measures in his own experimental research on interactions between personality and motivation. The ICAR Project (icar-project.com) is now applying these same methods to encourage broader administration of cognitive ability measures (e.g. psychometrically robust, royalty-free assessment of cognitive abilities over the internet).

Revelle has also continued to generate and refine broad and integrative theories in personality psychology. Building on his earlier work that focused on dynamic models of behavior, he developed the idea that individual differences in personality traits may

be best understood as dynamic patterns of affect, behavior, cognition, and desire (or motivation) – the "ABCDs" of personality – over time and space (Revelle et al., 2016). This perspective has been applied to individual trait domains such as anxiety (Wilt et al., 2011) and Extraversion (Wilt & Revelle, 2009), and it has been put forward as a promising, overarching framework for the field of personality as a whole (Revelle et al., 2011). The first trait taxonomy emerging from this perspective delineated fundamental personality traits (Extraversion, Agreeableness, Conscientiousness, Emotional Stability, and Openness/Intellect) into their respective ABCD components (Wilt & Revelle, 2015).

In 2006, Revelle pioneered a new method of collecting personality data online in a project he called the Synthetic Aperture Personality Assessment (SAPA; sapa-project.org). Revelle's use of the term "synthetic aperture" refers to data collection techniques in radio astronomy in which signals from multiple telescopes are combined to simulate the resolution or sensitivity of a telescope several orders of magnitude more powerful. Unlike most personality assessments that give the same set of items to all participants, the SAPA method administers overlapping subsets of items. This allows for administration of very large pools of items without increasing the response burden for participants. The SAPA site collects data from more than 40,000 participants per year and is unique among research-based personality assessments in terms of the scope of individual differences being measured (including several thousand public-domain personality, cognitive ability and interest items).

In addition to creating this innovative assessment website, Revelle has developed a number of cutting-edge tools for data analysis, including several techniques which address the challenges inherent to data sets with planned missingness (the SAPA method produces data with massive missingness completely at random). These tools are freely available for use in the *psych* package (Revelle, 2017), which was developed in the statistical programming language R. Several of these tools are based on statistical techniques that Revelle himself invented. Revelle's Very Simple Structure (VSS) algorithm (Revelle, 1979) is implemented by the function "VSS." This is an exploratory method for determining the optimum number of interpretable factors to extract from a data set. Revelle has demonstrated (Revelle, 1979) that the VSS method is consistently more accurate than commonly employed psychometric rules (e.g. scree test, parallel analysis, eigenvalue of 1) in revealing the true number of factors in simulated data sets. Revelle's ICLUST algorithm (Revelle, 1979), implemented by the "ICLUST" function, is another useful exploratory method for examining the structure of items. ICLUST hierarchically clusters items using correlations corrected for attenuation and continues until either a specified reliability and/or a specified number of clusters is reached. One measure of reliability employed by the ICLUST function is one of Revelle's own, named Revelle's β (Revelle, 1979). This statistic quantifies the general factor saturation as the worst split-half correlation of a set of items. Other prominent analytic techniques implemented in the *psych* package include factor and principal components analysis functions with many options ("fa" and "principal"), item response theory-based techniques ("irt.fa" and "score.irt"), and measures of internal consistency and inter-rater reliability ("alpha," "omega," and "ICC").

In total, the *psych* package currently includes more than 400 functions for describing, cleaning, transforming analyzing, and graphing data. Since its first release in May 2005, *psych* has steadily grown in popularity to become one of the most frequently downloaded

R packages. The time, energy, and care needed to develop and maintain *psych* are a testament to Revelle's commitment to open science and to his broader advocacy for reproducible research (this refers to the scientific practice of sharing data, code, and instructions that allow others to recreate analyses as reported). The biggest beneficiaries of this commitment include the many thousands of R users in psychology (and a wide range of other scientific disciplines) who use the *psych* package for data analysis (without charge!) yet, many others have benefited from Revelle's frequent workshops, conference presentations, tutorials, and public-domain textbook on psychometrics; all of these are available for free download on his website (personality-project.org). Additionally, he has made data sets and code used in his published research freely available to the public (Condon and Revelle, 2015, 2016).

Revelle's many contributions have also resulted in his election as president of three different organizations: the Society of Multivariate Experimental Psychology, the International Society for the Study of Individual Differences, and the Association for Research in Personality. He is a fellow of the American Association for the Advancement of Science, the Association of Psychological Science, and the American Psychological Association and the Division 5 Representative to the APA Council. Revelle is also the former chairman of the governing board of the Bulletin of Atomic Scientists, an organization devoted to the preservation of mankind by the elimination of the existential threats of nuclear war, global climate change, and biological and cyber terrorism.

Despite his numerous and varied contributions as a scholar, there is, perhaps, no better indication of Revelle's worldview than the fact that he identifies first and foremost as a teacher – a view that is entirely consistent with his reputation. Thousands of undergraduates, hundreds of graduate and postdoctoral students, and innumerable professional colleagues view William Revelle as a mentor and this will likely be his most enduring and generous legacy.

See Also

Internet Research in Personality
Motivation (Achievement, Affiliation, Power)
Replication Research

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Michael F. Scheier

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Dr. Scheier received his BA in 1970 from the University of California at Berkeley and subsequently earned his PhD at the University of Texas in 1975. While at Berkeley, Dr. Scheier published three articles in the following journals, *Animal Behavior, Journal of Experimental Social Psychology,* and *Journal of Consulting and Clinical Psychology*. As an undergraduate, he worked at the Institute of Human Learning under Dr. Donald A. Riley. During graduate school, Dr. Scheier remained active in research by assisting Dr. Robert A. Wicklund and working under his mentor Dr. Arnold H. Buss, a leading researcher in aggression, temperament, self-consciousness, and shyness according to the University of Texas's website.

The first publication of Dr. Scheier's, coauthored by Warren and Riley in 1974, examined if there were systematic functions of octopi behavior during the pursuit of crabs. It was purported that the change in color of the octopi while pursuing crab was influenced by the surrounding environment. However, Scheier and his colleagues found that color change was not dependent on environmental stimuli, suggesting that octopi color change is associated with octopi movement (Warren, Scheier, & Riley, 1974).

Dr. Scheier's first principal investigation with co-authors Dr. Fenigstein and Dr. Buss explored how self-awareness affects aggression and their findings were published in 1974. Together they proposed an experiment that addressed the factors altering aggression. Interestingly, when subjects were exposed to a mirror reflecting their image, aggression decreased. Scheier, Fenigstein, and Buss (1974) found that the presence of an audience had little effect in reducing aggression. Conversely, when participants made eye-contact with the audience, there was a reduction in aggression (Scheier et al., 1974). Scheier's work highlighted the importance of men's self-awareness on aggression toward women. Furthermore, the results of this study support theories of self-awareness that persons are more likely to behave by their own standards when in a state of self-awareness, than that of others (Scheier et al., 1974).

One of Dr. Scheier's influential early graduate works was *Public and Private Self-Consciousness: Assessment and Theory,* where he coauthored the development of a scale to measure individual differences in self-consciousness (Fenigstein, Scheier, & Buss, 1975). The scale, which has been cited over 4,000 times on Google Scholar, has led to other research on self-consciousness. The development of the Self-Consciousness Scale was influential in understanding the differences between private, social, and public self-consciousness. For instance, those high in private self-consciousness may be contraindicated for insight therapy, but may benefit from other forms of therapy that engages the individual with the outside world (Fenigstein et al., 1975). The graduate work of Dr. Scheier was instrumental in the understanding of self-awareness and self-consciousness.

Dispositional Optimism

In 1985, Scheier coauthored "Optimism, Coping, and Health: Assessment and Implications of Generalized Health Expectancies" with Charles S. Carver in the journal of *Health Psychology*. The paper focused on the optimism scale Scheier and Carver created. The psychometric properties were verified by previous studies before testing the scale in the longitudinal research. Undergraduates completed three questionnaires a month before the end of the semester, evaluating optimism, self-consciousness, and a physical symptom checklist. The same questionnaire was administered on the final day of the academic semester. Results confirmed hypotheses that respondents indicating high levels of optimism were less likely to find the physical symptoms troublesome compared to those with low levels of optimism. Scheier and Carver (1985) found those with high private self-consciousness, people who focus on thoughts, feelings, and aspects of themselves, had a stronger relationship to this effect than those with low private self-consciousness.

Scheier's research on optimism was featured in a story in the *Atlantic*, in 2012 (Villarcia 2012) as their research stimulated research on the potential of positive thinking on physical and mental healing. The *Atlantic* reported that the optimism scale prompted more research related to dispositional optimism, with Scheier noting that the appeal of the optimism scale was that it was the first of its kind and it only had six items, making it more likely to be used, especially in large studies. Indeed, the 1985 paper has been cited over 3,000 times since its publication, and united two diverse fields, psychology with biology, according to the *Atlantic*.

Self-Consciousness Scale

In 1975, Allan Fenigstein, Arnold Buss, and Michael Scheier created the Self-Consciousness Scale. The scale is a 23-item questionnaire measuring public self-consciousness, private self-consciousness and social anxiety. Public self-consciousness refers to observable aspects of oneself. This includes the influence behavior and appearance have on the perceived impressions of others. Private self-consciousness refers to thinking about aspects of oneself not easily seen or criticized by others. Experiencing social anxiety is a subjective

experience centered on the apprehension of being scrutinized by others or doubting whether one is presenting an acceptable self.

In 1985, Carver helped Scheier revise the scale in response to criticisms. Two problems were addressed. First, non-college respondents, such as patients, did not understand the vocabulary. Second, non-college respondents found the format confusing. Scheier and Carver (1985) realized the questions were not intuitive for the respondents. Participants were asked to identify characteristics that were not representative of themselves, and then to what degree those characteristics were unrepresentative. Respondents struggled with this process of self-reflection.

To address the problem, Scheier and Carver's study investigated three groups ("coronary artery bypass patients, victims of strokes and their spouses, and healthy middle-aged women") (1985, p. 689) who completed the assessment. Participants indicated 15 items should be revised. Questions were adjusted to emphasize the primary idea and rephrased with simple language. Scheier and Carver (1985) made necessary revisions to improve the scale, and only one item was omitted.

Late Career

In his late career, Scheier continues to publish work and teach at Carnegie Mellon University. He has maintained interest in dispositional optimism and stressful life events. Recent research reflects his curiosity in human motivation, specifically the relationship between persistence and goal-directed activities. He investigates outcomes related to difficult life circumstances. This relationship has been observed in practical settings, largely within the health discipline. Some of his work has examined diagnoses such as breast cancer, associations with smoking cessation, and influences on sleep.

An example of a recent article on health is one that Scheier coauthored with Jobin and Wroschin (2014) examining the relationship between dispositional optimism and diurnal cortisol levels. Jobin, Wrosch, and Scheier (2014) controlled for the differences of perceived stress levels between optimists and pessimists to observe levels of cortisol secretion from participants' standard level of stress. The sample used responses from 135 older adults who were assessed for cortisol levels on a total of 12 days across six years. Results revealed a significant relationship between optimists and lower levels of perceived stress. Optimists did not have higher levels of cortisol, even on days they perceived as more stressful, in contrast to pessimists who showed an increase in cortisol secretion on days perceived more stressful.

Throughout Scheier's career, including recent years, he has conducted his work from the perspective of a personality psychologist. Scheier coauthored a textbook with Carver titled "Perspectives on Personality" in 1988, which is now in its eighth edition. The format of the book describes a different personality perspective and its real world application. Various personality perspectives from biological to psychoanalytic are presented. Newer perspectives such as genetics are also presented.

Scheier and Carver still work together investigating the effects of dispositional optimism. In 2014, they published an article reaffirming the physiological and psychological benefits of optimism. In the review, Scheier and Carver highlight greater optimism predicts greater

career success, better social relations, and better health. Scheier and Carver (2014) found all of the effects appear to increase the engagement of pursuing desired goals.

Michael F. Scheier has had a successful career. He holds memberships with the American Psychometric Association, American Psychological Society, and American Academy of Behavioral Medicine to name a few. He has received several awards from the American Psychological Association, was president of Div. 38 (Health Psychology) and recognized in 1998 as the recipient of the Outstanding Contribution to Health Psychology award. In 2007, he was given the Donald T. Campbell Award for his lifetime contributions in social psychology (Scheier, March 10, 2010). Scheier is a periodic reviewer for over 10 journals and sat on the advisory panel for social and development psychology in the National Science Foundation. He has authored 14 books (Scheier, March 10, 2010) and created five original scales (Carnegie Mellon of University, 2017). Scheier has impacted the field of psychology through his active investigation in dispositional optimism, the general expectancy that good things rather than bad will happen.

See Also

Charles S. Carver
Health and Personality
Hope
Optimism/Pessimism, Assessment of
Optimism/Pessimism Carver and Scheier Theory
Optimism/Positivism vs Pessimism/Negativism

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Mark Snyder

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Professor Mark Snyder, McKnight Presidential Chair in Psychology and director of the Center for the Study of the Individual and Society at the University of Minnesota, has marked his career by examining "how individuals create their own social worlds" (Dr Mark Snyder, n.d.). In doing so he has investigated the nature of both the play and its players – the social context and the nature of the self, consistently maintaining the dynamic relationship between the two. Since earning his doctorate from Stanford University in 1972, Snyder's work has been well recognized with accolades from his affiliated institution as well as leading professional associations in the field. Some of these recognitions include: Society of Experimental Social Psychology Dissertation Award (1973), the Donald T. Campbell Award for Distinguished Research in Social Psychology (SPSP, 2004), the Lifetime Career Award (International Society for Self and Identity, 2007), the Kurt Lewin Memorial Award (SPSSI, 2008), and the Distinguished Scientist Award (SESP, 2011) (Dr Mark Snyder, n.d.). Snyder has published numerous articles in prestigious journals and is marked as one of the most influential and impactful contributors to the field. This is also reflected in his well-regarded book *Public Appearances, Private Realities* (1987) and the various editorial positions he has held, including editor for *The Oxford Handbook of Personality and Social Psychology* (2012). In general, Snyder's research is categorized into three areas: the trait of self-monitoring, behavioral confirmation, and volunteerism. But across all of these areas his work has been at the forefront of important changes in the field, influencing and shaping its progress while focusing on the self in action.

If all the world is a stage, Snyder's work probes the question, what motivates people to act and why do they act as they do? People bring different motivations to their everyday social interactions, which influence their resulting behaviors. Some are cognizant of their social circumstances and adjust their external behaviors in hopes of fitting in with ease; others do not. Others are firm in their behaviors and opinions, seeing any deviations meant to please or appease someone else as unfaithful to their own dispositions and beliefs. Such persons prefer consistency between their internal and external selves. Snyder has termed this phenomenon self-monitoring, characterizing the former example (adjusting behaviors for

the context) as high self-monitoring. The latter example, maintaining a consistent external self, is considered characteristic of low self-monitoring. Snyder's book, *Public Appearances, Private Realities* (1987), focuses on this construct. Specifically, self-monitoring refers to the extent to which people observe and regulate their self-projections. As a result, it often moderates other traits, for example a high self-monitor who is also extroverted demonstrates extraversion only when it is appropriate for the circumstances. This construct is measured using the Self-Monitoring Scale and includes 25 true-false, self-descriptive statements, though a shorter version is also available (Snyder, 1972). The use of this construct has been applied to many different contexts such as the examination of the effectiveness of different advertising strategies (see Snyder & DeBono, 1985).

A key aspect of self-monitoring is an awareness of others and choosing to adjust behaviors based on what is observed. However, sometimes people are unknowingly impacted by the expectations of those with whom they interact. Snyder's landmark study, co-authored with Tanke and Berscheid (1977), examines the influence of those with whom we interact on our own behaviors and the breadth of such an impact. This process is termed "behavioral confirmation" and it impacts how one acts toward and responds to others. A particularly good example of the phenomenon, the 1977 study, was merely a starting point for a program of research that would continue for over a decade. Participant pairs were composed of previously unacquainted males and females who converse via telephone. Prior to the interaction the male partner was led to believe that their partner was either attractive or unattractive. The conversation between the partners was recorded and analyzed by objective, naïve observers. The researchers were interested in how the male partner treated the female partner given his expectations based on the false information of her attractiveness. The researchers were also interested in how the female participants behaved in response to the male partner's treatment. Snyder and colleagues determined that the female participants' behaviors confirmed the anticipations of the male participants, despite these being based on the presented information. In fact, the behaviors of the male participants also elicited the confirmation of their expectations. Snyder (1984) later claimed that people use their hypotheses about others to help guide behavior when interacting with people. Treating others as if those hypotheses are true helps simplify interactions but also elicits confirmatory behaviors. This work continued to build on the concept of the self in action, demonstrating that people are architects of their own environment and not merely responders to it.

Perhaps the most applied area of Snyder's work is in the realm of volunteerism. His work broadened the scientific inquiry into prosocial behaviors, expanding the helping behavior literature beyond questions of the existence of true altruism. Along with Omoto, Snyder began by defining volunteerism and creating a model for understanding it. For Snyder and Omoto (2008) volunteerism is a kind of social action defined by six characteristics: (1) voluntary, (2) not a reflexive act nor emergency helping, (3) done over a period of time, (4) payment is not received nor punishment avoided, (5) willingly sought out by volunteers and those they serve, and (6) acts are performed on behalf of others or causes. The model they use for understanding this phenomenon is termed the Volunteer Process Model (VPM) and it has been used in both lab and field work with a variety of methodologies as well as diverse populations and causes. This model includes four levels of analysis: Individual, Interpersonal/Social Groups,

Agency/Organizations, and Societal/Cultural. The model also includes three stages: antecedents, experiences, and consequences. Most investigations into the antecedent stage of volunteerism address the motivations people have for becoming volunteers. Later work articulated the nature of volunteer motivation as "agendas for action" meaning that different people have different agendas that they put into action. These agendas can change over time, thus motivation to action is not static. Such investigations have yielded three general themes of motivation: personal values focused (e.g. humanitarian concerns, religious values), community concerns (i.e. desire to aid specific communities), and self-focused concerns (e.g. networking, career experiences, making friends). Investigations in the experiences stage have demonstrated that a match between motivations for volunteering and actual volunteer experiences yields more satisfaction for volunteers and increases the likelihood that they will continue to volunteer. Research on the consequences stage of volunteerism has focused on how attitudes, knowledge, and behaviors change as a result of volunteering. Generally, volunteering has benefits for both individuals and the community at large.

Mark Snyder's work has greatly influenced the field of psychology, casting a long shadow over various domains of the field. The nature of what psychology is today is, in part, shaped by his work. In general his work can be characterized as an investigation into the self in action. Though the self has been studied for a long time, his investigations began a dynamic perspective on the self – examining the ways in which people are creators of their own realities and not just mere responders to their environment. In addition these works represent a complex interplay between the literatures of both personality and social psychology.

See Also

Motivation (Achievement, Affiliation, Power)
Personality and Marketing/Product Design
Personality and Volunteerism
Self-Monitoring, Theory of
Self-Monitoring (to include the Self-Monitoring Scale), Assessment of

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David Wechsler

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David Wechsler, PhD (1896–1981), was a prominent Jewish American psychologist and scientist who is perhaps best known for his contributions to the conceptualization and evaluation of intellectual abilities across the lifespan. Wechsler was not born an American. Rather, his origins began in Lespezi, Romania on January 12, 1896. He was the youngest of seven children born to Moses Wechsler, a Hebrew scholar, and Leah Pascal, a local shopkeeper. Unfortunately, young Wechsler endured many hardships as a child. His home country was in the midst of famine, economic downturn, and growing anti-Semitism. The Wechslers relocated to New York City in 1902, but just four years later he had become an orphan. He was raised by his older brother Israel, who eventually achieved his own success and renown as a pioneer in neurology.

Education and Career

It was perhaps this combination of need for mentorship and guidance, and observation of his brother's success, that laid the groundwork for David Wechsler. He completed his Bachelor of Arts degree at the City University of New York (1916) and Master of Arts degree from Columbia University (1917) under Robert Woolworth. Here, his work focused on experimental psychopathology (Weiner & Craighead, 2010). However, Wechsler's curiosity and drive led him to seek a more applied experience. It was around this time that World War I was developing, a circumstance that led to Wechsler enlisting in the US Army. While awaiting his induction, he soon found a volunteer opportunity as a civilian scorer for the Army Alpha Test, the renowned group intelligence test administered to draftees. The Army Alpha Test was supervised by the Committee on the Psychological Examination of Recruits, which facilitated a first meeting between Wechsler and eventual mentors Edward Thorndike and Robert Yerkes.

Wechsler received his first assignment as an individual examiner for the Psychological Division of the Sanitary Corps at Fort Logan in Houston, Texas. In this role, Wechsler was tasked with administering the Stanford-Binet test to recruits who had performed poorly during group intelligence testing. However, the experience left him dissatisfied with the single score offered by the Stanford-Binet. It also convinced him of the limitations of current intellectual measures, which were designed predominantly for children and with an emphasis on verbal-intellectual functions. To Wechsler, these measures seemed less fair to adults, particularly those of foreign-born or lower education status who still functioned adequately as citizens.

In 1918, Wechsler received transfer orders to Europe. In 1919, he enrolled as an Army student at the University of London, where he conducted experiments in psychology under the guidance of Charles Spearman and Karl Pearson (Weiner & Craighead, 2010). Through this experience, Wechsler personally concluded that Spearman's general theory of intelligence (*g*) was overly restrictive, as it did not account for contributions from non-intellectual factors such as personality (Weiner & Craighead, 2010). Wechsler was officially discharged from service in August 1919, and shortly thereafter won a fellowship to the Sorbonne from 1920 until 1922. There, he studied the relationship between galvanic and emotional responses under the guidance of Henri Pieron and Louis Lapique – a topic that eventually influenced his doctoral research (Weiner & Craighead, 2010). In 1922, Wechsler returned to Columbia University to complete his PhD in experimental psychology, and published his dissertation, entitled "The Measurement of Emotional Reactions: Researches on the Psychogalvanic Reflex," in the *Archives of Psychology* in 1925.

Following graduation, Wechsler spent the next several years in a series of clinical positions that included private practice, the Psychopathic Hospital in Boston, and the Bureau of Child Guidance in New York City. During this period, he began to experiment with developing and using various types of tests. In 1926, for example, his *Tests for Taxi Cab Drivers* was used by the Yellow Cab Company of Pittsburgh. As acting secretary for the Psychological Corporation (1925–1927), he made publishing connections that would result in many of his subsequent intellectual measures.

In 1932, Wechsler assumed the role of Chief Psychologist at Bellevue Psychiatric Hospital. One year later, he joined the faculty of the New York University College of Medicine. He also met and married his first wife, Florence Felske. Unfortunately, hardship revisited Wechsler as Florence died tragically in an automobile collision just three weeks after their marriage in 1934. Wechsler devoted himself to his work, and just one year later had authored his first full text, *The Range of Human Capacities*, which he dedicated in her memory. In 1939, he again discovered love and married his second wife, Ruth Halpern. That same year, he published his first full measure, the Wechsler-Bellevue Intelligence Test. The couple went on to have two children, Adam and Leonard Wechsler.

As a result of his accomplishments at Bellevue and NYU, Wechsler served as a consultant for the US military during World War II and the Veterans Administration following the war. He remained on staff at Bellevue Psychiatric Hospital until 1967, and continued to serve as clinical professor of psychiatry at New York University School of Medicine until 1970. Though retired from clinical practice, he remained active academically and in humanistic endeavors. In recognition of his own Jewish heritage and its importance to him and his family, Wechsler worked with his brother Israel to fund the Hebrew University and

establish its psychology department. In 1947, Wechsler assisted in the development of a mental health program for Jewish survivors of the Holocaust (Kaufman, 2016). He also participated in the Wechsler Adult Intelligence Scale revision projects until his death at the age of 85 due to lung cancer. On May 2, 1981, Dr. Wechsler passed away in his home on the east side of Manhattan, New York City.

Legacy and Influence

The legacy and influence of Wechsler is an encyclopedia entry all on its own. In brief, he is widely considered to be one of the primary founders of clinical psychology. He was highly active as a leader in professional psychology. As noted above, from 1925 to 1927 he served as acting secretary of the Psychological Corporation, which led to the cultivation of publishing relationships that would result in many of his renowned measures. From 1959 to 1960, he served as the President of the American Psychological Association – a tenure that fundamentally altered its makeup from a predominantly experimental to a clinical psychological organization. He was also integral to the creation and organization of the American Board of Examiners in Professional Psychology, which fostered certification in clinical psychological specialties.

Prior to the introduction of Wechsler's measures, intelligence was widely conceptualized based on the use of individual mental age. Wechsler instead established the deviation quotient, conceptualizing intelligence as the amount of individual deviation around a mean score derived from one's representative peer group. This allowed for improved assessment of adult abilities that changed with age, and made it easier to detect abnormalities. Wechsler also rejected the concept of general intelligence as a single score, instead conceptualizing it across two main areas of verbal and non-verbal intelligence. He suggested the concept of *pattern analysis*, in which component subtest scores are compared to one another.

Wechsler's series of measures are still the most widely used today (Boake, 2002; Weiner & Craighead, 2010). They are also the most widely studied (Wahlstrom et al., 2012), and have been translated into over a dozen languages (Georgas et al., 2003). Wechsler's work was not only meaningful, but prolific: he authored more than 60 books and articles on the structure and evaluation of intellectual abilities. His most important texts include *The Range of Human Capacities* (1935), *The Measurement of Adult Intelligence* (1939), and *Non-Intellective Factors in General Intelligence* (1940). In a survey published in the *Review of General Psychology*, Wechsler was subsequently ranked as the fifty-first most cited psychologist of the twentieth century (Haggbloom et al., 2002).

David Wechsler has been recognized through numerous awards and honors during his lifetime, including the Special Award from the American Association on Intellectual and Developmental Disabilities (1972), Distinguished Professional Contribution Award from the American Psychological Association (1973), and an honorary doctorate from the Hebrew University of Jerusalem (1979). Posthumously, his family established the still active award program entitled the David Wechsler Early Career Grant for Innovative Work in Cognition through the American Psychological Foundation.

Though this entry represents an attempt at a brief review of his life and contributions to psychology, he is perhaps best understood and described by former mentee Alan Kaufman, PhD (Kaufman, 2016), who noted: "Dr. Wechsler possessed a rare blend of humility and

grandeur. From the first day I met him, he treated me with kindness and with a respect I had not yet earned. He was soft-spoken, yet every word was carefully measured and carried authority. He was a man of unusual compassion and unflagging integrity."

See Also

Assessment of Intelligence, General Features and Methodological Issues
Culture Free/Fair Intelligence Test
Cultural Intelligence
Emotional Intelligence
Emotional Intelligence in the Workplace
Emotional Intelligence, Assessment of
Intelligence-Personality Association, Assessment of
Personality and Intelligence in Employee Selection
Social Intelligence
Stanford-Binet Intelligence Scales (SB5)
Wechsler Adult Intelligence Scale-IV (WAIS-IV)
Wechsler Preschool and Primary Scale of Intelligence (WPPSI)
Wechsler Memory Scales (WMS-III)
Wechsler Preschool and Primary Scale of Intelligence (WPPSI)

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**The Wiley Encyclopedia of Personality
and Individual Differences
Volume III**

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Volume III

Personality Processes and Individual Differences

Editors in Chief

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My dad, Professor Bernardo "Bernie" Carducci, had a passion for life. He loved being a dad, celebrating Italian culture and community, and talking cigars with friends at the local smoke shop. My dad also loved psychology – teaching psychology, researching psychological phenomena, and raising awareness of the power and promise of an undergraduate psychology degree. He was an excellent teacher, scholar, and mentor who never lost sight of his roots as a first-generation college student, committing numerous hours and energy in support of student success. To those who knew my dad, it was no surprise. He was a personality psychologist. My dad had a BIG personality, evident in his bright ties, Hawaiian shirts, and zest for life. He was passionate about the study of personality and experienced tremendous joy in his life's work, the study of shyness. My dad was honored to be selected as editor of the latest volume of the *Wiley Encyclopedia of Personality and Individual Differences* and frequently shared with me his enthusiasm for the project. Although his unexpected passing prevented him from shepherding the book through the final stages of publication, I know he would be proud of the final product and wish to express his gratitude to all contributors and editors. I would like to extend a special thank you to Chris Nave for his willingness to assume editorial responsibilities of this volume upon my dad's passing.

Dad, I love and miss you very much. Congratulations on the publication of this volume!

Rozana Carducci

Adaptability

Jérôme Rossier

University of Lausanne

Definition and Emergence of the Construct

Adaptability is usually conceived as the psychological capacity that allows people to adapt, in a constant, dynamic, and dialectic interaction with the environment. This adaptation is understood in terms of mutual adjustment and recognition. It may occur within close interpersonal relations or within larger social structures or organizations. Adaptability has been linked with the Freudian notion of regression; adaptive regression is a shift from the ability to delay immediate gratification and a lack of mobility to immediate gratification and flexibility. It might promote several adaptive behaviors such as problem-solving skills and creativity. Adaptive capacity was also an important aspect of Jean Piaget's (1896–1980) theory of cognitive development. According to his view, the cognitive system is adaptive when assimilation and accommodation processes are balanced and when both are equally effective. The importance of an unstable equilibrium was already central in Claude Bernard's (1813–1878) and Walter Bradford Cannon's (1871–1945) notions of homeostasis, the property resulting from a cycle of disruption and reintegration allowing adaptation to internal and external changes. Adaptation, and thus adaptability, is also a product of evolutionary processes.

Nowadays adaptability is usually conceived as a psychological means that sustains adaptive behaviors allowing one to face and manage stressors and to promote an adjustment between a person and its environment (P-E fit). Both adaptability and coping are constructs that contribute to regulate the expression of contextually adapted behaviors and affect. Savickas (1997) claimed that adaptability is a crucial competence in a contemporary world, since it fosters the ability to handle insecurity and to manage our lives and careers. In this context, adaptability increases people's tolerance of uncertainty and ambiguity, and helps them to evolve in a dynamic and boundaryless context.

Adaptability is considered as one of the four levels of adaptive functioning. First, people differ according to trait-like dispositions (also referred to as proneness to adapt), or their predisposition to adapt depending of their level of *adaptivity* or flexibility. Second, in order

to adapt, people have to be able to use and activate regulation processes that are psychosocial resources, called *adaptability* (or abilities to adapt). Third, when people express adaptive responses, such as orientation, exploration, or self-management behaviors, they are *adapting*. Finally, adaptive functioning or *adaptation* occurs if the P-E fit is satisfactory for the environment and satisfying for the person. According to this perspective, adaptability is a set of important regulation processes underlying adaptation.

Adaptability and Dispositions

Adaptability and Personality

Michael Kirton developed his adaptive-innovative theory in the 1970s to describe the problem-solving styles of executives, managers, and leaders. He distinguished on one end of a continuum people who prefer to "do things better," and on the other end people who prefer to "do things differently." Both styles are adaptive, but doing things differently requires more creativity and the use of new, original, and culturally acceptable problem-solving strategies. These cognitive styles are considered as consistent individual differences and are known to relate meaningfully with the Big Five personality dimensions. The adaptive-innovative dimension correlates positively with extraversion and openness to experience, and negatively with conscientiousness. Moreover, decision-making performance in a changing workplace seems to be positively associated with openness, and negatively with conscientiousness. On the contrary, when considering adaptability as a set of adaptive abilities from a psychosocial perspective, it is negatively associated with neuroticism and agreeableness, and positively with extraversion, openness, and conscientiousness (the strongest association). These contrasted correlations that problem-solving styles and adaptability show with conscientiousness indicate that they are conceptually different. Moreover, the overlap between these styles, adaptability and personality is only partial.

Adaptability and Intelligence

Adaptive behaviors are usually described as being the result of learned cognitive, practical, and social competencies allowing people to function in everyday life as expected by the cultural group. Emotional disturbance and cognitive disabilities are considered as maladaptive, and the assessment of adaptive functioning is important for diagnosing mental retardation and learning disabilities. Context also impacts adaptive functioning; for example, childhood abuse is linked with the future development of cognitive flexibility and presumably adaptability.

According to Robert Sternberg (1949–), cognitive abilities contribute to adaptive skills and to performance as expected by the social context. General intelligence helps people cope with everyday demands and has thus an important adaptive function. Yet, despite its adaptive function and its correlations with adaptive responses, the association between intelligence and adaptability competences, such as exploratory behaviors or planning skills, is usually small. This confirms that adaptability has to be distinguished from intelligence and adaptive behaviors. An illustration of this phenomenon is that multitasking

abilities predict cognitive skills, such as working memory, but seem to be slightly different from multitasking adaptability, that concerns the ability to respond rapidly to changing task demands. Finally, social intelligence or emotional intelligence is related with adaptability or adaptive abilities in social contexts or tasks.

Adaptability as a Self-Regulation Ability

Adaptability refers to abilities that regulate behavioral and affective expression in order to select adapted behaviors and to feel appropriate emotions associated with low levels of discomfort or cognitive dissonance. Several concepts share common aspects with adaptability, and can be considered to some extent as self-regulation processes. Firstly, three coping skills are traditionally distinguished: Appraisal-focused (understanding the causes), problem-focused (finding a solution), and emotion-focused coping (regulating the affects induced by the difficulty). Secondly, the concept of ego resilience or resilience describes the ability of some people to overcome adverse and stressful situations by reequilibrating their responses to adjust to changing conditions. Then, cognitive flexibility implies a willingness to be flexible and a confidence in the ability to behave effectively; self-confidence can promote a feeling of security allowing flexibility, and can also induce less permeability to external influences. Finally, emotional regulation processes, self-efficacy and outcome expectations are also seen as regulation processes.

Adaptability shares some aspects with all these constructs and contributes along with a clearly structured self-concept to resilience or flexibility. Communication flexibility positively relates to communication adaptability. Moreover, coping flexibility refers to a person's ability to use a diversity of strategies to handle challenges occurring in different circumstances. This coping flexibility is promoted by dialectical thinking capacities and negatively correlates with a need for closure (or an intolerance to uncertainty and ambiguity). Being able to use different coping patterns or strategies, being able to actualize multiple roles, selves, or identities contributes to help individuals adapt to changing circumstances. For example, people with higher coping flexibility are less sensitive to stressful situations and tend to have a lower systolic blood pressure in those situations. Thus, individuals with a wide array of self-regulation abilities probably have fewer difficulties in managing a wide variety of dynamic internal and external constraints.

This regulation is possible because these processes are sensitive to the environment and contribute thus to an adaptive feedback loop. Taking into account information from that loop, activating the most adaptive mechanism, and adjusting one's behavioral expression is likely facilitated by one's self-awareness. The self, the multiple selves, or the self-concept constitutes a meta-competency that manages the activation and allocation of these adaptive resources. Moreover, adaptability, self-efficacy, and outcome expectations promote an anticipation of the implications of one's choices and behaviors. Thus, these processes can help people adopt preventive and protective behaviors. This property of adaptability also contributes to self-directedness and to people's proactivity, referring to anticipatory and change-oriented behaviors with an impact on the environment. Adaptability is therefore not only about people's adaptation to the external constraints but also about adjusting the context to their needs.

Adaptability, Health, and Career Outcomes

Adaptability and Well-Being

Several studies have shown that regulation processes, such as adaptability or self-efficacy, are positively linked with psychological health and well-being. These self-regulation processes are positively related to life satisfaction and positive affect and negatively related to negative affect. At the same time, reciprocal influences between these psychological resources, well-being, and overall quality of life are very likely, as illustrated by the fact that the relationship between adaptability and life satisfaction is partially mediated by hope. Moreover, adaptability has long-term implications for life satisfaction and well-being since it influences affect well-being even one year later. Considering that adaptability is thought to be strongly influenced by circumstances, these long-term effects of adaptability might be explained by positive short-term impacts triggering a virtuous circle between adaptability, adaptation, positive emotions, and well-being.

Adaptability at Work

According to the theory of work adjustment, the P-E fit implies a fit between abilities and requirements on one side, and values and reinforcers on the other side, leading respectively to satisfactoriness and job satisfaction. This adjustment process implies usually an adaptation that can be active, by changing the context, or reactive by adapting to the context. Organizations today are often very dynamic and changing environments require from employees a constant adaptation. The underlying ability to adapt is associated with the capacity to handle work stress, crises, unpredictable work situations, learning new work situations, etc. Adaptability is an important predictor of academic achievements, job engagement, and job performance, especially when this performance occurs in a dynamic situation. For example, the adaptability of telemarketing sales representatives during interactions with clients predicts their sales performance. In the workplace, cognitive adaptability is also known for being negatively linked to unrealistic expectations that in turn are associated with less burnout. Furthermore, adaptability also contributes to people's employability and their ability to gain and maintain employment.

Career Adaptability

In the contemporary world characterized by the emergence of new technologies, globalization, downsizing, or even rightsizing, being adaptable and able to learn have become crucial abilities to plan and self-manage a personal career. The psychosocial construct of *career adaptability* has been developed to describe a set of abilities contributing to people's competence to make appropriate career choices, manage and construct their career, and design their life. Career adaptability includes a set of four abilities: Concern, associated with the ability to plan; control, associated with the ability to make decisions; curiosity, associated with the ability to explore; and confidence, associated with the ability to solve problems. Career adaptability is positively linked with P-E fit, job performance, and employability, and negatively with turnover intention. Thus, organizational retention

strategies should pay particular attention to unsatisfied but adaptable people more at risk of leaving the organization. Of course, individuals do not only use internal resources to cope with their professional environment. Other resources, such as social support, are also very important. However, an adaptable person might have more facilities to take advantage of external resources.

Role of Adaptability for P-E Relationships

The self-regulation process at the core of adaptability implies that it mediates, and/or moderates the behavioral expression of personal dispositions, to adjust this expression to environmental expectations. Moreover, adaptability also mediates the environmental impact on the relationship between dispositions and behaviors. This mediation may constitute one of the pathways of the feedback loop of adaptation. For example, career adaptability is known for partially mediating the relationship between internal dispositions, such as personality or orientations to happiness, and work-related outcomes, such as work engagement or work stress. Similarly, adaptive skills mediate the relationship between values and contextual work-performance. As expected, career adaptability also mediates the impact of external constraints, such as job insecurity or job strain, on work-related behaviors or well-being outcomes, such as job satisfaction, work stress, life satisfaction, or psychological health. Psychological flexibility helps people deal with adverse job conditions, and overwhelming social interactions, but this help is particularly effective when people are not exhausted. Thus, adaptability has an impact on the demands-exhaustion-performance relationship by diminishing the negative impacts of job demands on exhaustion and performance, but these relationships are complex and certainly not all linear. Highly adaptable people also invest more in maintaining an adequate P-E fit. As such, they are proactive in their relation with their environment. Finally, adaptability also helps people choose an environment adapted to their aims and goals, by diversifying their options. Still, even though adaptability is an important regulation process, other processes, such as emotional regulation, self-efficacy, or humor, also contribute to this self-regulation.

Enhancing Adaptability

A secure familial environment and parental behaviors of acceptance and involvement favor the development of children's adaptability. One goal of education is to increase children's ability to cope with novelty, new tasks, and social situations. As such, for a social group or a family, this adaptability implies the ability to change its rules, its way of functioning, and its members' roles in response to new circumstances. Interestingly, some authors consider that being too adaptive, especially for a family, can be potentially problematic due to the lack of structures, but that a lack of adaptability might also be problematic due to the rigidity that it implies. When getting older, the unity of the self, openness to experience, flexibility, and adaptability tends to decrease slowly.

If adaptability seems to evolve during the life-span, it also seems to change quite rapidly due to circumstances. For example, people with slightly higher adaptability have a more

stable employment situation, suggesting that adaptability helps them find more favorable job situations. Yet, unemployed people seem to have higher levels of adaptability, suggesting that people activate their resources and adaptive skills in adverse situations. Similarly, but in an opposite direction, once a career choice is made, career adaptability seems to decrease. Thus, adaptability is a dynamic component of a person varying with circumstances.

One way to help people cope with stressful or changing demands is to stimulate and enhance these regulation or adaptive processes in order to promote an easier adaptation. Several interventions have been developed to increase emotional regulation competences and they have been shown to be very effective. Moreover, adaptability-centered brief-career interventions have proven to increase counselees' employability, job satisfaction, person-organization fit, and career success, as well as to decrease turnover intentions.

In sum, adaptability is an important regulation process allowing people to adjust to and select their environment, and it can be improved by specific psychological interventions.

See Also

Coping
Ego Control/Ego Resiliency Theory (ARCH)
Mark Savickas
Resilience Theory of, Not Just the Trait Dimension
Self-regulation
Social Skills in the Workplace

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Aggression, Personality Correlates

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Aggression is defined as any behavior that individuals engage in to purposely cause harm to another unwilling individual. The majority of studies concentrate on the negative implications aggression has for self and others. In its extreme form, where serious harm to another person is intended, aggression is called violence. Despite its negative connotations, aggression was considered beneficial in our evolutionary past, where it helped in protecting territory and offspring. Aggression is a highly complex construct, and has psychological, social, biological, and cultural origins. It appears in various forms (e.g. physical, verbal, and sexual), and across many contexts (e.g. school, workplace, home environment, etc.).

Classifications of Aggression

Aggression can be classified into three separate categories that tap into the reasons individuals had when committing the act of aggression. However, aggressive acts may encompass more than one type. Hostile aggression is usually an unplanned act whose purpose is to cause harm to someone else, and is due to being in a negative emotional state. Instrumental aggression is premeditated behavior where a person commits an act of aggression in order to make some gain. Finally, relational aggression involves behaving with the intention of harming the social relationships of another person (e.g. through gossip).

Aggression can also be classified according to Kenneth Dodge and colleagues' proactive versus reactive aggression. Proactive aggression is pre-planned aggression, oriented toward achieving some goal. Reactive aggression is aggression in reaction to some perceived threat.

Theories of Aggression

Instinct Theory

According to Freud, aggression is instinctual in nature and inevitable. It stems from the innate death instinct he believed was possessed by all humans, which is destructive and aims to end life. This death instinct causes aggressive urges which build up and must be expressed, either outwards toward others or inwards toward the self. When it is expressed outwards, it can be either done in a socially acceptable form (e.g. through play), or through unacceptable means (e.g. fighting).

Another supporter of an instinctual depiction of aggression was Konrad Lorenz, who said that humans (and other animals) possess a fighting instinct. This aggressive energy builds up continuously, and must be relieved, or else it will release even when an appropriate stimulus isn't available.

Social Learning Theory

Developed by Albert Bandura and colleagues, this theory proposes that aggression is learned from observing others committing aggressive acts, as well as seeing whether that behavior gets punished or rewarded. One famous experiment illustrating this theory was the Bobo doll experiment (Bandura, Ross, & Ross, 1961). In this experiment, children who observed adults performing aggressive actions against a Bobo doll (e.g. hitting with a mallet) were more likely to imitate such behaviors and overall behave more aggressively, in comparison to groups that had not observed the aggressive adult.

Script Theory

Scripts can be defined as sets of knowledge that define a situation, and inform people about what behaviors to use in that given situation. This theory describes how aggressive scripts we learn, for example from the mass media, can influence our aggressive behaviors in future interactions (see Huesmann, 1986). Aggressive scripts are learned over time and can become easily accessible, making aggressive responding more likely in situations.

Frustration-Aggression Hypothesis

This theory claims that frustration as a result of having one's goals obstructed leads to aggressive behavior, and furthermore claims that aggression is only caused by frustration (see Dollard, Doob, Miller, Mowrer, & Sears, 1939). While frustration is sometimes the cause of aggression, future studies disproved the notion that it is always the cause. One concept that fits with this theory is displaced aggression, which is when aggression cannot be directed at the original source of provocation (the source of frustration), and is thus directed at a non-related and often innocent target.

The theory was later revised by Berkowitz, who claimed that negative affect caused by frustration, or other sources, creates a state of readiness to behave aggressively, and also

that aggressive behavior will manifest in response to aggressive cues in the environment associated with aggression.

Excitation Transfer Theory

According to this theory, physiological arousal (e.g. from exercise) when in concurrence with an anger-inducing experience can cause people to misattribute their arousal, and become even angrier and more aggressive (see Zillmann, Katcher, & Milavsky, 1972).

Cognitive Neoassociation Theory

This theory views aggression as a result of negative affect, and of spreading activation of thoughts, memories, and reactions related to aggression (see Berkowitz, 1990). Negative events are thought to cause negative affect, which in turn activates flight (and feelings of fear) or fight (and feelings of anger/aggression) related cognitive schemas, as well as physiological and motor reactions. Stimuli associated with the negative event can become associated with aggression-related cognitions. Berkowitz and colleagues also state that situational cues and stimuli relating to aggression (e.g. weapons) have the potential to elicit aggressive responses.

General Aggression Model

This model developed by Craig Anderson and colleagues integrates many of the aforementioned theories by conceptualizing aggression as a series of connected processes (see Anderson & Bushman, 2002). The model begins with person-centered and situational variables as inputs. These cause aggression-related thoughts, feelings, and physiological arousal to occur. Finally, these lead to appraisal and decisional processes that determine action and social outcomes.

Other Influences on Aggression

Biological

There are a number of biological influences that have been suggested to affect aggression levels. Dysfunction in the activity of brain regions, including the prefrontal cortex, amygdala, and anterior cingulate cortex, is suggested to cause increased aggressive tendencies. Hormonal influences in the form of testosterone are suggested to have a positive and reciprocal relationship with aggression. The neurotransmitter serotonin also has an impact on aggression levels, with lower levels of serotonin being linked to aggressive behaviors. Ingested substances like alcohol are also linked to increases in aggression.

Cultural

Different cultures have different norms with regard to the acceptability and frequency of aggression. For example, societies with higher gender inequality norms tend to have more incidents of violence against women. An experiment by Cohen, Nisbett, Bowdle, and

Schwarz (1996) showed that when comparing men from Northern versus Southern USA, men from the South are more likely to demonstrate a readiness for aggression and aggressive behavior after they were insulted, due to their "culture of honor."

Personality Characteristics and Aggression

There are clear individual differences in the frequency with which people behave aggressively. These individual differences refer to personality characteristics that cause certain individuals to become higher or lower in aggression compared to others.

Trait Aggression

Trait aggression considers aggression a personality trait instead of just a situational response. People who score high on trait aggression tend to habitually respond to situations in a more aggressive manner. Buss and Perry (1992) developed the Aggression Questionnaire (AQ) to measure trait aggression. The AQ is composed of four subtraits relating to trait aggression: physical aggression, verbal aggression, anger, and hostility. Individuals who score higher on this scale are considered to be higher in trait aggression.

Five Factor Model of Personality

The personality traits openness, conscientiousness, extraversion, agreeableness and neuroticism have demonstrated relationships with aggression. This fits with the general aggression model, which states that personality traits are one of the factors that influence aggression. Agreeableness has been shown to have the strongest (negative) relationship with aggression out of the five personality factors. With regard to the other personality traits, conscientiousness generally has a negative, and neuroticism a positive association with aggression. Findings in the research literature show mixed results for openness and extraversion.

Narcissism

Narcissism is defined as having high regard for oneself and a sense of superiority. Studies have demonstrated that narcissistic individuals, whose self-regard is high but unstable, become aggressive if they experience criticism, and thus have their ego threatened (i.e. they experience threatened egotism). Acts of aggression are committed (often against the person who criticized them) in order to protect their self-image as well as to re-establish dominance.

Rejection Sensitivity

Humans have an innate need to belong socially, and those who are unable to fulfill that need often react in an unproductive, antisocial manner (e.g. aggressively). Some individuals are especially sensitive to interpersonal rejection, and possess a "cognitive-affective

processing disposition" called rejection sensitivity (RS; see Downey & Feldman, 1996). Individuals high on RS anxiously expect rejection from other people, as well as having a tendency to over-react to perceived rejection. Studies have demonstrated that those with high RS often react aggressively when they feel like they were rejected, and can do so even when low RS do not react to that situation aggressively. However, high RS individuals are not more aggressive in general; their aggression is incited by a defensive response to a perceived rejection episode. High RS has negative interpersonal consequences, for example high RS of men invested in their romantic relationships can serve as a predictor of physical aggression against intimate partners.

Consequences of Aggression

The interpersonal and intrapersonal consequences of aggressive behavior in studies are predominantly negative, and extend into many domains of life. For example, when considering intrapersonal consequences, studies have demonstrated an association between aggression and having lower life satisfaction, having a higher risk of heart-related health problems, and being more likely to engage in risky health behaviors.

Interpersonal consequences of aggression affect both the perpetrator and the target of aggressive behavior. For example, being the target of aggression is more likely to make that person aggressive. Victims of domestic violence have higher risks of developing physical and mental health complications, parental rejection and/or abuse has been linked to increased aggressive behaviors in children. Children who act aggressively are more likely to drop out of school, and aggression in the workplace leads to decreased job performance.

Future Directions

While the topic of aggression has been vastly studied across multiple domains, there are nevertheless still many avenues that require further exploration. For example, what combinations of various individual difference variables influence aggression is one possible area of future research. While interventions for aggression do exist already, grouping different interventions to increase their benefits or targeting interventions to deal with each type of aggression would be of great value. Interventions to decrease aggression in various settings, across age groups, and in different cultures is also an area that is still ripe for further research.

See Also

Anger
Gender Differences in Aggression
Hostility, Personality Correlates
Irritability/Moodiness

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Altruism

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Altruism refers to the act of helping or benefiting others on an individual or societal level and is often synonymous with being selfless or prosocial. More specifically, altruism occurs when an individual voluntarily assists another despite the cost of time, money, or other resources required to help. Altruistic behaviors include sharing, donating, co-operating, or volunteering. For example, a man who goes into a burning house to save a child would be considered to have acted altruistically; he has performed a positive action to benefit others or society with no expectation of personal reward or benefit. The decision to help someone varies between individuals and situations. Individuals must see the need to help and feel they have the proper resources to give adequate assistance. Even when a need is identified and the resources are available, an individual's personality or beliefs can also influence whether a person will commit to helping.

However, some altruistic behaviors may not appear to be helpful at first. For example, Murielle decides not to help her friend, Albert, complete his homework on time because she wants him to learn the material himself and to prioritize his work next time. Albert might feel that Murielle is being mean; however, Murielle has his best interest at heart. Alternatively, an altruistic individual can punish someone who is behaving poorly in order to correct the behavior. These altruistic punishments serve as a way to redirect undesirable, selfish behaviors that deviate from a society's standard of fairness as well as to aid the victim (Fehr & Fischbacher, 2003).

Theoretical Views

Different perspectives on altruism have emerged in biology, anthropology, and psychology. The biological perspective focuses on the costs and benefits associated with helping another. In the animal kingdom, altruistic behaviors are largely limited within social groups that are genetically related to each other. Biologists note that certain species of animals will decrease their chance of surviving and reproducing only if their sacrifice can

increase the chance of a relative's ability to survive and reproduce, known as kin selection. Humans appear to be a rare exception to helping both related and unrelated individuals, as they often co-operate with others to achieve a common goal. Consequently, humans engage in altruism at a much higher frequency than animals. Anthropologists aim to understand how the helping behaviors evolved in humans despite the often high cost associated with helping others. For instance, if Dianna helps Andrew in one of his class projects instead of focusing on her own studies, Dianna will be increasing Andrew's success while decreasing her own. At a later time, Andrew returns the favor and helps Dianna study for her finals. This phenomenon, referred to as reciprocal altruism, demonstrates the pattern of turn-taking to reinforce future helping behaviors and may be one explanation for why humans engage in altruistic behaviors.

The field of social psychology has played the largest role in furthering the understanding of the motives behind why an individual would want to co-operate or help in a situation, including what factors impact one's decision to help. Two predominant theories have been put forth: social exchange theory and Batson's prosocial motivation model. Social exchange theory notes that prosocial behaviors will only occur when the benefits outweigh the cost associated with helping. Although relatively simplistic, four motivations for prosocial behaviors have been identified. First, helping can occur when individuals believe that it will benefit themselves in the long run (e.g. Nathan helped May now because he knew she would help him later). Second, helping can occur to truly benefit another with no ulterior motives (e.g. the elderly stranger needed help crossing the road and Lee went to help her). Third, when helping benefits a group (e.g. Christine took a penalty for the team). Finally, individuals may be motivated by their value system (e.g. I will help because it is the right thing to do). However, there is no consensus in the research literature. Some argue that no act is truly unselfish, while others argue that there are particular situations where completely selfless sacrifices are made with no ulterior motives. Regardless, prosocial behaviors are essential to the survival of the human race and the development of successful societies.

Development of Altruism

Learning to help others requires the development of several social skills. A person must be able to identify the intention of another's action through their body language or emotions. At the same time, the potential helper must be able to assess the situation and determine that the other person is in need of help.

One of the first skills children develop before engaging in altruistic behaviors is the ability to understand that another person's feelings and intentions may differ from their own. Prosocial behaviors begin to appear more frequently after the age of one year, yet children begin to understand other's minds around the age of two years. There is debate as to whether toddlers help because they genuinely see a need and want to help, or if they simply want to participate in an interesting task. How a child gives assistance changes rapidly after his or her first year of life. For instance, young children (12–14 months) will help an adult retrieve an object that is just out of the adult's reach. In this situation, a child is responding to an unfinished goal and is able to understand the physical intention of the

adult. However, children are generally not able to assist an emotional distress until they are older (18–24 months). With age, children's self-awareness is more developed and they are better able to understand the internal emotions of others.

By the age of three years, children are able to observe how an adult treats another adult and, based on their observations, children will decide whether or not to help. If a man treats a woman well by helping her, then children are more likely to help the man in a later task. Subsequently, if the man hinders the woman, children are more likely to withhold help from the man later. Therefore, children are selective in who they help and can understand the social value of helping versus harming. By choosing to not help, children demonstrate a form of altruistic punishment where they actively withhold their assistance (Vaish, Carpenter, & Tomasello, 2010).

The difficulty in studying altruism in children and adults is identifying ways to tap into an individual's motivations, as motivations can only be known if they are explicitly reported. Obviously, this challenge is amplified in children because their verbal skills may be unable to articulate their internal thought process. In addition, researchers also have to consider how a child is exposed to the social world. Socialization introduces new motivations such as social acceptance, appearing socially desirable by a certain group, or hoping future help would be offered in return. Because social desirability affects the reporting accuracy of motivations, researchers often question the true meaning behind someone's altruistic behavior.

Impact on Individuals

Regardless of a person's motive, there are many benefits to an individual for acting in prosocial ways. Several studies have looked at the benefits to volunteering. When people volunteer, they perceive their lives as being more satisfactory and fulfilling. In some cases, those who have experienced a past and personal hurt or disappointment often go on to help those who may be currently experiencing similar problems. A key benefit to altruism is that helpers are exposed to more social relationships and hence develop stronger social support systems.

A potential benefit, known as the helper principle, describes a mentality that helpers have regarding their own understanding of why they are helping. When assisting others, a persuasive thought crosses a helper's mind that says "Life must not be so bad if I can afford to help others" (Melkman, Mor-Salwo, Mangold, Zeller, & Benbenishty, 2015). In addition, helping instills a sense of empowerment or reassurance that an individual is making a difference. This attitude can serve as a protective factor against mental health illnesses such as depression. Helping at a younger age also appears to increase the chance of other prosocial behaviors into adulthood and healthier mental sets throughout life.

Measures of Altruism

Altruism is a challenging construct to measure. Research in altruism often requires the participant to demonstrate prosocial behaviors in a particular situation. Rushton, Chrisjohn, and Fekken (1981) developed a 20-item questionnaire to assess a person's altruistic behaviors. The

Self-Reported Altruism Scale requires selection of one out of five frequency responses per item. Some examples of the items include "I have given money to charity" and "I have donated blood." The rater replies on a scale of never, once, more than once, often and very often, with higher scores indicating greater levels of altruism.

Encouraging Altruistic Tendencies

With all the benefits that altruistic behaviors provide, researchers have begun to investigate how to increase prosocial behaviors. One method involves implicitly suggesting that helping behaviors are highly desirable and positive. Because most people generally think of themselves as good, they will adjust their behavior to gain further approval. If a person happens to be acting in a selfish manner, indirectly bringing awareness to the desirability of selflessness may get the selfish individual to reassess their own actions.

As one evidence-based program aimed at increasing altruistic tendencies, Ramia (2005) found that a mandatory learning course with a service-based internship encourages altruism in youth. The program required attendance at conferences as well as publishing reflections in an online discussion group regarding their internship experience. Using the Self-Report Altruism Scale, each participant's altruistic behaviors were assessed before the course began, at the end of the course and one year after the course completion. The results indicated that the program had a positive impact on altruism even after a year had passed and that increasing altruism in others is possible.

See also

Character and Leadership
Compassion
Life Satisfaction
Personality and Volunteerism

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Alexithymia

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Conceptualization and Measurement

Alexithymia, literally translated as "no words for feelings," is a personality trait characterized by deficits in specific cognitive and affective functions. Individuals high in alexithymia experience confusion when attempting to identify their emotions and have difficulty describing their feelings to others. Though alexithymic individuals are thought to experience emotions, they have difficulty identifying their sources or linking them to concrete thoughts. If asked to describe their feelings, they frequently express uncertainty (e.g. I'm not sure), use vague descriptors (e.g. I feel upset), or opt for descriptions of physical complaints (e.g. my stomach hurts). When recalling or experiencing meaningful personal events, those high in alexithymia often exhibit muted facial expressions and/or a discongruence between behaviorally observable and self-reported emotionality.

Although alexithymia refers to difficulties in understanding one's own emotions, it has also been linked to the misinterpretation of emotions in others. Others' facial expressions (e.g. fear, sadness, and anger) are more difficult to identify, and there is often a delay in noticing changes in those expressions. This frequently results in lower empathic capabilities and a greater indifference regarding interpersonal relationships. Individuals high in alexithymia tend to have smaller circles of close friends and a diminished social support system.

Alexithymia is also marked by an externally-bound style of thinking. This cognitive style includes behaving and making decisions based on rules and expectations of others rather than one's own desires, thoughts, or personal values. Alexithymic individuals often mirror others in their relationships and react as they believe is expected and appropriate instead of based on their own sentiments. Externally-bound thinking is also associated with a reduced capacity for creativity and imagination. Fantasies are scarce and dreams, if they are recalled, are frequently dull in content.

The first cases of alexithymia were measured through clinical interviews and case studies dating back to the late 1940s. Clinicians observed a decreased capability for verbal expression of emotions in patients suffering from post-traumatic stresses, substance abuse, and other psychosomatic conditions. While early attempts to measure alexithymia tended to dichotomize the trait into individuals with and without it, more recent research has identified it as a dimensional construct. Individuals are now considered to be either high or low in alexithymia and several self-report scales have been developed to assess the trait in both clinical and non-clinical populations.

The most often used survey of alexithymia is the Toronto Alexithymia Scale (TAS-20; Bagby, Parker, & Taylor, 1994), whose items measure three separate factors: difficulty identifying feelings, difficulty describing feelings, and externally-oriented thinking. Another popular scale is the Bermond-Vorst Alexithymia Questionnaire (BVAQ; Vorst & Bermond, 2001) which contains five factors: identifying, verbalizing, analyzing, fantasizing, and emotionalizing. The first three are often categorized into a larger cognitive factor and the latter two into an affective factor.

Etiology

Genetic, neurological, and environmental factors are all implicated in alexithymic traits. About 30–33% of the variation in alexithymia scores appears to be due to genetics. Key brain regions involved in the processing of emotional stimuli are also associated with alexithymia, including the anterior cingulate cortex and the medial prefrontal cortex. Victims of traumatic brain injury frequently exhibit alexithymia characteristics, further lending support to a partial neurobiological origin.

Shared experiences between family members have little effect on individual differences in alexithymia characteristics. Rather, unshared or unique experiences explain 50–60% of variation in alexithymia traits. Children who have suffered trauma, interrupting their natural emotional development, are more at risk for developing alexithymia. This trauma can be of a physical nature, although history of emotional abuse correlates strongest with alexithymia. Emotional abuse or neglect is especially potent when coming from the child's parents. Neglectful parenting styles can lead to children developing insecure attachment relationships. A lack of nurturing, perceived neglect, overprotection, and intrusive parenting can lead to a controlling relationship that lacks affection. This emotional neglect can disrupt the normal childhood development of emotion regulation, including the ability to identify and label emotions in self and others. Thus, alexithymia is more likely to develop in persons who have experienced psychological trauma in early childhood, particularly if it leads to post-traumatic stress disorder (PTSD).

Associated Illnesses

Typically, people with alexithymia are unable to identify the emotional causes of their physical symptoms, and therefore may assume that their symptoms are due to a physical illness. Psychosomatic disorders are those which both the body and mind contribute to

the manifestation of a physical illness, but individuals with alexithymia have difficulty in identifying the mental or emotional component. Owing to this, higher levels of alexithymia may play a role in the development of physical diseases such as hypertension, peptic ulcers, and chronic pain issues.

Although first identified in people with psychosomatic disorders, alexithymia has also been found to play a significant role in other clinical populations. It has been linked to several psychiatric disorders and is often used as a predictor of their treatment outcomes. Alexithymic characteristics are frequently identified in persons with substance abuse, post-traumatic stress, autism spectrum, anorexia nervosa, anxiety, and depressive disorders.

Related Psychological Concepts

Alexithymia has often been studied alongside psychological defense mechanisms or repressive-defensive coping styles. The latter are typically considered separate but related constructs wherein the mind is defending itself by decreasing emotional involvement. Both alexithymia and defense mechanisms include psychological withdrawal, or a person psychologically distancing themselves from thoughts, people, or situations. As well, both alexithymia and defense mechanisms include processes of inhibition, where thoughts and emotions are not actively expressed. However, individuals employing a repressive-defensive coping style often score low in alexithymia. Repressors may deny or avoid their experience of emotions, whereas alexithymic individuals acknowledge their feelings, but have difficulty elaborating or expressing them.

Anhedonia is also conceptually related to alexithymia. While alexithymia is defined as the inability to identify and describe emotions, anhedonia is the inability to derive pleasure from usually enjoyable activities. Both alexithymia and anhedonia are concepts that are frequently characteristic of psychiatric disorders, such as post-traumatic stress or anorexia nervosa.

Emotional numbing, a symptom cluster within PTSD, also shares conceptual similarities to alexithymia. Emotional numbing is often described as an inability to emotionally connect with others, and an affected person may not feel fully in the present. Emotionally numb individuals may have difficulties with creating meaningful emotional ties with people due to reduced affect or emotional feelings.

Alexithymia has been found to be negatively related to the concepts of psychological mindedness and emotional intelligence. Alexithymia can be considered the opposite of psychological mindedness, defined as a person's ability to examine their own emotions, thoughts, and feelings, as well as the ability to see the underlying meanings of events and emotions. Those who display alexithymia often score low on psychological mindedness, indicating a difficulty in recognizing their own emotions. Those who score high on alexithymia and low on psychological mindedness have extreme difficulty responding to treatment.

Emotional intelligence (EI) is considered to be the ability to perceive, understand and act upon one's own emotions, as well as those of others. Alexithymia correlates with a low capacity for empathy, and people high in alexithymia usually score low in both self-report and ability tests of EI.

Treatment or Reduction of Alexithymia

Alexithymia is considered a relatively stable trait, making it particularly resistant to efforts to reduce it. Treatment of comorbid disorders such as depression has had some success in reducing alexithymia levels, however, it is important to take the type of treatment into consideration. Cognitive behavioral therapy has been shown to be effective for persons high in alexithymia, whereas reflective psychotherapies which demand an insight into the patient's emotions are thought to be less effective.

Historically, the treatment of alexithymia when targeted individually has involved a long and slow process, taking the form of a psychoeducation about emotions. The clinician explains to the alexithymic patient how their emotions can manifest as physical symptoms or behavioral expressions, and teaches them to correctly identify them. Efforts are made to strengthen the patient's ability to connect bodily sensations with images and words. For instance, a fluttering feeling in the stomach may be explained as a physical reaction to anticipation or anxiety. Imaginative processes are also frequently encouraged as the clinician helps the patient explore fantasy and the meaning of dreams, broadening the patient's narrow tendency toward an externally-oriented thinking style.

Role playing may also be used to provide guidance concerning non-verbal communication. When treated in groups, patients have more opportunities to engage in interpersonal situations and practice identifying the emotions of others.

Future Directions and Studies

Most research concerning alexithymia is cross-sectional and relies on self-report questionnaires. Newer methods to measure alexithymia, such as observer reports and structured interviews, are increasingly being employed to provide a multi-method approach to studying alexithymia. There are advances still to be made into the etiology of alexithymia, particularly the influence of early attachment styles and the interruption of emotional development, and the most effective means of treating persons suffering from psychological disorders with which it is associated.

See Also

Coping
Defense Mechanism
Depression
Emotional Intelligence, Correlates of

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Androgyny, Expression of

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The psychological construct of androgyny has gained much attention over the past four decades following an important advancement in sex-trait theories concerning the structure of masculinity and femininity. That is, the adaptation of a sex-trait model comprising two orthogonal dimensions, over the original conceptualization purporting masculinity and femininity as bipolar opposites of a single continuum, enabled androgynous types to be accounted for. Through removing the restrictions proposed by a mutually exclusive singular dimension, it allowed theorists such as Bem and colleagues (e.g., 1977) to operationalize sex-traits as coexisting dimensions that may be present in the traditionally disproportionate manner reflecting gender stereotypes or in equally high or low levels within a single individual. Specifically, people scoring high on one dimension but not the other are considered sex-typed, whilst those scoring high and low on both are denoted androgynous and undifferentiated, respectively.

Bem and Lewis (1975) operationalized androgyny as the equal endorsement of socially desirable masculine and feminine characteristics. Therefore, androgyny is commonly measured by presenting participants with a series of socially desirable characteristics relating to masculinity and femininity and asking them to endorse all which they believe themselves as possessing. The Bem Sex Role-Inventory (BSRI) was the pioneering measure of psychological androgyny formulated using this form of rating system. Participants' relative standings on the masculinity and femininity scales (termed instrumental-expressive by Bem) are then calculated to formulate a trait description of high-low for masculine, low-high for feminine, high-high for androgynous and low-low for undifferentiated. Therefore, Bem purported that androgyny presented the new standard for good mental health, enabling individuals to be both instrumental and expressive, assertive and yielding, dominant and nurturing and to adapt a situationally flexible interpersonal demeanor, ensuring that their behavioral responses and expressiveness are contextually appropriate. The greater behavioral flexibility of androgynous individuals is said to reflect their possession of both feminine and masculine qualities, in addition to the fact that they do not rely on cognitive gender schemata to organize their behaviors, attitudes, and perceptions. Androgynous

individuals are thus said to not internalize the societal pressures placed on adherence to the traditional gender roles, whereas sex-typed individuals tend to restrict their behavior according to the bounds outlined by those considered stereotypically appropriate for their gender. It has therefore been suggested that androgynous persons see gender differently from sex-typed individuals.

Nevertheless, Bem's scale and theory were later criticized for lacking the inclusion of negative characteristics in the formation of the BSRI scales and its sole focus on interpersonal relationships/adjectives, failing to include androgynous acts, behaviors and attitudes, and intellectual, material and temperamental adjectives (Lefkowitz & Zeldow, 2006). Therefore, the operationalized definition adopted combines that derivative of development psychology and that of social psychology. Specifically, androgyny may be defined as an individual who possesses both the dominant, instrumental, tough, decisive and intellectual characteristics typically deemed male or masculine in nature and the nurturing, expressive, delicate and submissive characteristics stereotypical of females and feminine types, that is, having the temperament, advantages and strengths of both, alongside being able to act in situationally appropriate ways due to their flexible, integrated disposition. Moreover, these limitations of earlier studies suggest that alternative forms of sex-trait measurement should be utilized, such as the use of other individuals to rate participants' relative standing on both positive and negative characteristics, behaviors and attitudes commonly considered representative of either masculinity or femininity and not the other (Lefkowitz & Zeldow, 2006).

Personality Correlates of Androgyny

As aforementioned, androgynous individuals are considered to comprise an equally high share of characteristics traditionally considered masculine and feminine. Therefore, the following depictions of these two sex-traits may be considered coexistent within the androgynous type. Nevertheless, androgynous individuals have also been found to display several characteristics and behavioral traits that are not indicative of either masculinity or femininity. Masculine females and males generally possess strong independent and decisive traits including: dominance, leadership qualities, aggression, social ascendency, assertiveness, strength, autonomy, ambition, independence, self-reliance, intellectual ascendency, agentic, willingness to take a stand, athleticism, competitiveness, individualism, risk seeking tendencies and forceful. In comparison, feminine females and males tend to display softer and more dependent characteristics, such as being tender, submissive, compassionate, nurturing, warm, sympathetic, sensitive, affectionate, expressive, agreeable, understanding, gullible, introverted, shy, communal and self-subordinating.

In addition to exhibiting an equally high proportion of the above characteristics, androgynous individuals also tend to display more social poise, intellect, social competence, and creativity. Conversely, undifferentiated individuals tend to score low on masculine and feminine traits and display more negative characteristics, such as, being unassured, self-doubting and aimless. A clear comparison between these two groups is the fact that high-high (androgynous) individuals commonly rate themselves as exhibiting more positive

characteristics, while low-lows (undifferentiated) frequently attribute negative traits to themselves. Further differentiations are apparent when these groups are compared on several autobiographical variables, such as evidence that androgynous individuals tend to report fewer childhood illnesses, more frequent dating, and greater scholastic achievements than undifferentiated individuals.

Moreover, Wiggins and Holzmuller (1978) found androgynous females to attribute aggression, bossiness, daintiness, extraversion, gullibility, over-talkativeness, perkiness, naivety, uncalculatingness, geniality, vocality, bluntness, vivaciousness, fickleness, emotionality, animatedness, directness, excitability, frightenability, open-heartedness, peppiness, solicitousness and rambunctiousness significantly more often than androgynous males. Similarly, androgynous males tended to rate the characteristic features of quietness, shyness, antisociality, bashfulness, lacking emotion, silence, soft-spokeness, calmness, lack of feeling, hard-heartedness, toughness, indirectness, meekness, lack of aggression, passivity, reservedness, lack of dramaticality, calculatingness, arrogance, lack of excitability, lack of romance, and taciturnity significantly more than androgynous females did.

Behavioral Expression, Activation and Inhibition

Expressivity is said to be more strongly related to femininity than masculinity, especially for women, but the characteristics that comprise femininity do not necessarily correlate with expressivity. Furthermore, androgyny is purported as reflecting the more comprehensive concept of interpersonal flexibility. The fact that androgynous participants tend to more willingly, openly, actively and happily partake in gender atypical activities and feel no sense of shame or embarrassment after having done so supports this notion. Taken together, it is conceivable that androgynous individuals may be considered the most behaviorally expressive and less inhibited in their range of situationally diverse behaviors. Indeed, previous research has found that androgynous individuals tend to be the most expressive, followed by feminine and finally by masculine individuals. Specifically, androgynous people report being more dispositionally expressive and more expressive of their love, happiness and sadness than sex-typed individuals. Moreover, others tend to rate them as more facially expressive when depicting sadness, fear, anger, disgust and happiness than masculine and feminine types (Kring & Gordon, 1998).

The greater levels of expressivity shown and reported by androgynous individuals may be associated with findings indicating that they tend to be more extraverted than both sex-typed and undifferentiated individuals, the latter of whom commonly score highest on ratings of introversion. Similarly, androgynous persons are able to adapt their behavior according to situational demands, not feeling any pressure to modify their behavior according to gender stereotypes. Therefore, being androgynous may enable one to participate in varied contexts appropriately and hence actively (i.e., be more expressive), while also providing the skills required to inhibit alternative behaviors that would be considered inappropriate in the circumstance at hand, and reinforcing their continued behavioral expressiveness in a variety of contexts. Androgyny has thus often been considered the most adaptive and beneficial sex-trait.

Advantages of Androgyny

Androgyny was first proposed to be the most adaptive and effective sex-trait by Bem and Lewis (1975) in their series of work indicating that it provided individuals with a behavioral repertoire consisting of both feminine and masculine traits, thereby giving androgynous individuals a level of behavioral flexibility unknown to the sex-typed individual. Specifically, androgynous individuals are not restricted by the gender stereotypes held as the acceptable social norms, whereas sex-typed individuals are bound by their unwillingness or inability to perform gender reversed acts. That is, masculine and feminine persons commonly gauge their behavior according to gender roles rather than what a given circumstance calls for, while androgynous individuals consider the situation and adapt their behavior accordingly. This behavioral flexibility was said to result in greater reinforcement of androgynous individuals' behaviors as they were more frequently considered appropriate in the given circumstance. Moreover, greater social reinforcement was considered imperative in boosting one's self-esteem and confidence, alongside presenting other interpersonal benefits (e.g. being more mature in the acts in and judgments of social situations).

However, contrary to such propositions, rating oneself as possessing more masculine than feminine features was more consistently associated with greater benefits for self-esteem than androgyny. Nevertheless, prior to the work of Lefkowitz and Zeldow (2006) the research on sex-traits had relied solely on self-reports, with results arising from alternative methodological procedures providing strong evidence for the potential benefits that androgyny holds over masculine, feminine, and undifferentiated types. These findings suggest that while masculine individuals tend to rate themselves higher on measures of self-esteem, androgynous individuals actually possess greater self-esteem.

Similarly, clinical judgments indicate that despite some findings of higher self-reported psychological well-being for masculine types, androgynous individuals are commonly the most psychologically healthy, present the least amount of psychopathology (e.g. less neuroticism, anxiety, and depression) and adopt more positive and adaptive coping mechanisms. Androgynous children and adults also tend to exhibit the greatest physical health and fitness, in general. Furthermore, androgynous individuals tend to display greater social competence, satisfaction with life, self-regard, self-acceptance, confidence, synergy, inner support, time competence, motivation to achieve, marital satisfaction, parental success, creativity, optimism, subjective well-being, sense of security, social adaptation and capacity to adapt and accept oneself as they change across contexts and time. Finally, androgynous individuals tend to be rated by others as the most liked, adjusted, and sexually attractive. Nonetheless, it is important to note that most of the previous findings have been centered on correlational studies and analyses of variance, hence causation cannot be implied. That is, there is always a certain degree of extraneous variation, whether it be from person-centered differences or variables excluded from the study alongside variations across cohorts, cultures, situations and testing procedures, all of which require consideration. However, the results do suggest that, on average, androgyny is more frequently associated with better health, overall social proficiency, acceptance, adaptability and appraisal, greater psychological well-being, interpersonal maturity and a personality profile that they willingly temper to the demands, needs, and wants of the situation and people involved, freedom to be who they want and what is most appropriate in the situation they either actively choose or find themselves in.

Moreover, the findings provide evidence that androgyny has distinct advantages over masculine, feminine, and undifferentiated individuals, in both Western and non-Western cultures as they tend to exhibit more free willing characters which result in greater health benefits and social outcomes. Nonetheless, androgynous individuals may be more varied in terms of their general profile and hence an appropriate standard or comparison must be ascertained when determining the relative benefits they may hold against these counterparts when it comes to a specific target population. Likewise, it is important to note that what constitutes masculinity and femininity and hence androgyny varies across cultures according to what behaviors and characteristics are considered desirable, natural, and stereotypical of each gender. The beneficence of androgyny over other sex types may, therefore, also depend on the degree to which strict adherence to gender rules (or social norms) is viewed as important in the society.

See Also

16 PF, Correlates of
Gender Differences in Perceived Personality Traits of Men and Women
Gender Differences in Subjective Well-Being
Judgments of Personality

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Anger

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Conceptualizing Anger

Anger has traditionally been defined as a core emotion that results from the obstruction of a goal or from a provocation such as a verbal or physical attack. Darwin described anger as an action orientation to counteract the obstacle. Anger as a research topic remains of highest importance to this day because it often leads to negative consequences such as aggression and violence. Many social situations can lead to anger, especially when a provocation is perceived by the offended person as intentional. As Aaron Beck (1976) illustrates in his book on the cognitive behavioral treatment of emotional disorders, encroaching on someone's rights, verbal attacks in the form of criticism, coercion, rejection, deprivation, opposition, exclusion, annoyances, rude or disrespectful behavior, and violations of rules are typical triggers of anger. At the physiological level, anger activates the sympathetic nervous system and thus mobilizes energy, tenses the muscles, and increases the heart rate, blood pressure, levels of adrenaline and noradrenaline. With this surge of energy, the angry person can feel confident, strong, alert, determined, courageous, and impulsive. The feeling of anger may also include descriptions such as hot sensations, a jolt of energy, and a pulsating heart. Thoughts are focused on themes of injustice, and motives are dominated by expressions of grievances and restoration of justice. The angered person may respond with specific verbal or physical expressions or may refrain from any action. One of the defining characteristics of core emotions such as anger is their specific associated facial expressions usually involving specific facial muscles. For anger, the typical facial features are lowered eye brows, thinned lips, a flared nose, and raised cheekbones.

Distinctions Between Hostility, Aggression, and Anger

Contemporary theories of affect tend to view anger and other emotions as involving complex associations between affective states, cognition, motivation, and behavior. Although the concept of anger has sometimes been used interchangeably with hostility

and aggression, meaningful conceptual differences and theoretical associations do indeed exist between these three constructs.

Hostility vs. *Anger* Although anger includes thoughts or appraisals about the external environment, particularly focusing on the meaning or intentionality in social interactions, hostility tends to refer only to the thoughts. In the *Aggression Questionnaire* developed by Buss and Perry (1992), the Hostility scale includes items that refer to thoughts of getting a raw deal out of life, whereas anger refers to behaviors such as letting irritation show. Hostile thoughts have themes of cynicism, denigration, jealousy, mistrust, resentment, suspicion, and unfairness. Hostility may exist on its own as a stream of thoughts preceding a full anger response or take the form of a more ongoing rumination. Hostile thoughts often arise in response to the perception that another person intended to do harm, and some people will react more strongly than others to specific types of social threat such as general injustices or situations involving threat to self-esteem. Hostile thoughts can take the form of rumination, leaving a person constantly primed to experience anger in response to minor triggers.

Aggression vs. *anger*. Aggression is defined as a behavior directed with the intent to harm someone. In distinguishing between anger and aggression, it is important to highlight two general categories of aggression: reactive-angry aggression and instrumental aggression. In reactive-angry aggression, a person has experienced some kind of provocation and reacts with an aggressive behavior. The reaction typically involves anger, but it is the action that defines aggression. Where the distinction between anger and reactive-angry aggression becomes a bit obscure is in examples of behavioral expressions of grievances that may or may not include intent to harm. In instrumental aggression, the aggressor is not necessarily provoked or angry. Reactive acts of aggression result from triggers or provocation whereas instrumental acts tend to be premeditated and do not necessarily involve angry reactions.

State and Trait Anger

The experience of anger can usually be demarcated within the stream of affect and defined as a state. Emotional experiences such as anger are common experiences that come and go. When the stream of affect is not dominated by strong emotions, people are more likely to describe how they feel in terms of their current mood. Such mood descriptions can include less intense negative affect in milder forms of anger such as irritations or annoyances. Some people are prone to experience anger much more intensely, more frequently, and in many more situations than other people who seem to remain calm even when provoked. It is therefore meaningful that much research in anger has investigated the role of dispositional factors.

Psychological traits refer to stable patterns in thought, behavior or affect across situations and over extended periods of time, typically in years. A person who experiences frequent and intense states of anger in various situations and shows a stable pattern of anger over time would be inferred to have high trait anger. The stable pattern may be expressed at the level of cognition, the intensity of affect, and the behavioral reaction. The cognitive dimension of trait anger may involve a hostile-attribution bias, characterized by a tendency to view hostility

where it does not really exist. The affective component may include a strong physiological reaction, not unlike the strong signal of a siren in contrast to a much weaker car horn. The behavioral reaction of the high trait individual would appear as regularly explosive, exaggerated, and usually perceived as uncalled for by observers.

The underlying causal factors of trait anger can be studied at several biological and psychological levels. Molecular genetics have focused on identifying candidate genes, while behavioral genetics have investigated the proportion of variance in traits attributable to heredity. Other studies have investigated the influences of hormonal and specific brain structures. Early maladaptive experiences and the formation of particular cognitive schemas have also been implicated. For example, the hostile-attribution bias is a tendency of perceiving the world as hostile and other people as intentionally wanting to harm others. People's interpretations may be accurate and functional whereas others may be biased and dysfunctional. Trait anger has also been linked to problems in self-regulation or lack of effortful control.

From trait anger to the anger state. A common framework for studying the link between traits and states is the person by environment model. In the case of anger, this model suggests that an environmental trigger such as a provocation paired with a strong anger trait raises the probability of an experience of state anger. Triggers include social interactions perceived as provocations, especially when these are perceived as intentional. Other less direct triggers include environmental conditions such as heat, noise, or crowding.

Sex differences in anger. No clear pattern has emerged to suggest that men and women differ in their experiences of anger. This is not to say that the provoking situations that lead to anger are the same for men and women. However, sex differences in the social contexts that promote anger have not been clearly delineated either. Anger is more likely to result in physical aggression in men than in women in most social contexts, but not in intimate relationships where research has shown that women are just as likely as their partners to use physical aggression. Relationship concerns may be particularly important to women because of their traditional primary caretaker role. Men, traditionally in their provider role, would show concern for job-related competition or protection of partners. Also, girls are socialized to suppress their anger and therefore would be less likely than boys to express in public environments. Public display of anger or aggression would be less damaging to men who would be seen as affirming their masculinity.

Measuring Anger

Given the distinction between state and trait anger, it is important to distinguish between these two concepts in assessment. Furthermore, research in social cognition, emotion and motivation taken together raise the need to assess a number of facets of anger: the subjective feeling states, cognitive processes, physiological reactions, and expressive behaviors. A third consideration is whether specific measures are needed to assess anger in contextual domains such as domestic situations, work domains, or in other public domains.

The most common method used to assess anger is the self-report questionnaire, which aims to capture a direct measurement of subjective feeling states. Charles Spielberger developed the latest version of his state–trait anger inventory, the STAXI-2, in 1999

(see Spielberger & Reheiser, 2009). Earlier versions of this instrument included the State–Trait Anger Scale (STAS). The state anger scale measures the intensity of momentary anger from mild irritation to annoyance, to rage. The trait scale assesses disposition to anger in terms of intensity and frequency with two correlated subscales referring to angry temperament and angry reaction. Additional research led to the inclusion of three additional scales: Inhibition (Anger-in), Expression (Anger-out) and Control of Anger. The inhibition and expression scales were seen as two poles of a continuum with control in the middle.

Other self-report questionnaires include scales such as the Novaco Anger Scale and Provocation Inventory (Novaco, 1994), which includes descriptions of anger-provoking situations, asking respondents to rate the degree of anger that they would feel if they were placed in that particular situation. This scale format is particularly useful for identifying particular types of triggers and provoking situations.

Consequences of Anger

Intense anger can have negative consequences such as reactive aggression in its various contexts: child and spouse abuse, dangerous driving and road rage, assault, and murder. Dispositions to anger have negative consequences for long-term intimate relationships and vulnerability to illnesses involving the immune system and cardiovascular disease. However, anger can also provide useful information and be constructive. A person may indeed have experienced unfair disrespect, insult, or other injustice, perhaps on a repeated basis. In some cases, the offender may have caused the provocation unintentionally. Expression of a grievance may help repair a social relation in a constructive manner. In some situations, moral outrage may be justified and help discourage unethical behavior.

Dispositions to anger differ in their intensity, varying from the experience of occasional everyday anger to clinical levels that result in severe consequences such as rage, physical aggression, and violence. Although anger itself is not identified as a disorder, it is a feature in several psychiatric disorders. Treatments of anger can target the hostile-attribution bias and the ruminative thoughts with cognitive behavioral therapy (CBT). The aim of CBT is to change a person's maladaptive thought patterns by learning to recognize when irrational thoughts occur. Treatments that address self-regulation focus on having people recognize cues in the social environment that act as triggers or provocations. Another component of treatment is to help people recognize the emotional phenomenology of anger rather than suppressing it.

Future Directions for Research

Researchers will continue to investigate the situational contexts and triggers that give rise to anger. With societal and technological changes such as violent media entertainment and social networking come new forms of provocations and triggers of anger. Various interrelated disciplines have recognized the benefit of addressing psychological problems in a preventive way in early stages of development and in schools. Anger is often addressed within broader areas of emotional control and self-regulation and within specific problem areas such as bullying, road rage, and domestic violence.

See Also

Aggression, Personality Correlates
Anger and Hostility, Assessment of
Gender Differences in Aggression
Hostility, Personality Correlates
Impulsivity
Self-Control

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Anxiety

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Conceptualization and Measurement

Anxiety as a concept most likely originated in early Greek texts, and has been studied in parallel to the conceptualization of self-awareness. It is a basic emotion involving feeling excessively tense, fearful, or uneasy, especially when anticipating an unknown or unclear future event. Anxiety can be seen as a mood state that is future-oriented, and adaptive or maladaptive depending on the severity and relevance of anxiety present. Anxiety can be adaptive during situations where caution is appropriate, and it can keep one from harm. However, anxiety can be maladaptive when the situation does not require an anxious response, and one occurs anyway. For example, feeling anxious and fearful at leaving the house to go to the grocery store is a maladaptive overestimation of the danger of leaving home, and being in a busy public place.

The contemporary understanding of anxiety is that it is multidimensional, as it can be a state or a trait, and can be of normal or clinical severity. As a state, anxiety may manifest as immediate feelings of nervousness or tenseness about an upcoming future event. As a trait, anxiety is a personality component that involves a person being prone to anxiety even in events that do not require it. Trait anxiety can consist of negative emotions, issues with the body, disruptive behaviors, and disturbed thinking. As well, a distinction between normal and clinical anxiety can be made. Many people feel anxiety, which is normal, but not everyone experiences it in a debilitating manner. There is a clinical class of mental diagnoses with multiple different manifestations of anxiety disorders, such as separation anxiety, or developmentally inappropriate anxiety about separation from parents/guardians; selective mutism, or consistently failing to speak in certain situations, but otherwise able to talk; specific phobia, or anxiety about specific things, such as blood, a situation, or an animal; social anxiety disorder, or a social phobia with anxiety about social interactions; panic disorder, or unexpected rush of fear; agoraphobia, or fear about public transit, open or enclosed spaces, crowds, and being outside the home; and generalized anxiety disorder, or persistent

and exaggerated anxiety about general things. Anxiety can also be substance-induced or a consequence of another medical disorder.

In order to measure anxiety, self-report measures are most commonly used. A list of general subjective measures can be found in *Anxiety 101*. However, a basic issue with self-report measures is that they can be very subjective and not very objective. It is sometimes better to have fewer subjective measures, such as measuring anxiety with physiological and behavioral measures. Some physiological methods include measures such as blood pressure, pulse rate, heart rate, respiration, and brain activity. Behaviorally, anxiety can be measured as avoidance or distressed behaviors, as coded by trained observers. As well, performance measures and the polygraph machine can be used. Anxiety is best measured through more than one method.

Etiology and Theories of Anxiety

The causes of anxiety are complex and not fully understood. However, a few different mechanisms of anxiety have been explained. Anxiety can be learned through a process called *conditioning*, whereby anxiety is associated with an event or object the person has experienced, and the person feels anxiety when faced with that event or object. For example, a person who has been bitten by a dog and experienced pain may now be fearful of all dogs. Similarly, a person can indirectly learn to be anxious when observing an adult who is experiencing anxiety. A parent may be anxious about attending an event, and so the child also learns to be anxious about attending an event.

There are also biological and genetic explanations for anxiety. Humans as a species are already prepared to be anxious or fearful about certain things that threatened survival in the past, such as snakes or heights. Not everyone is fearful of these things, but it is not uncommon for people to have phobias or anxiety about things that threaten survival. As well, genetic influences may also increase a person's risk of anxiety. If a person has a parent with an anxiety disorder, that person has an increased risk of also having an anxiety disorder. However, the two different people may have two different anxiety disorders, and there may be more of a tendency to be anxious-prone in general instead of having the genes for specific anxiety disorders.

There are certain factors that increase the risk of having an anxiety disorder. These include genetics as previously mentioned, but general life stress can also increase a person's risk of developing an anxiety disorder. This can include adverse events in childhood, as well as traumatic events. Temperament may also be a risk factor, such that those who display the trait of neuroticism, which may include worry, fear, anxiety, loneliness, and other moods and states, are more at risk for anxiety.

Mineka and Zinbarg's Contemporary Learning Theory (2006) incorporates genetics, temperament, and both learning mechanisms into a model to explain why some people develop anxiety and others do not. In this theory, there are two criteria that have to be met. First, there is a genetic or temperament aspect plus previous learning experiences that create a vulnerability to anxiety. Second, there must be three different contexts: conditioning, a stimulus, and perceived control. For example, a person has trait neuroticism, and has had

a previous bad experience with dogs. If the person enters into a situation with a poorly trained dog, they may be anxious, fear being bitten, and feel as though they are not in control of the situation.

A second theory, Barlow's Triple Vulnerability Theory (2000), incorporates both the biological and genetic pathways in an explanation for how anxiety develops. The first criterion for the development of an anxiety disorder is a risk or vulnerability factor. The second and third criteria are a specific psychological experience of anxiety and a general psychological factor, such as lack of control, improper parenting style, or negative events.

Associated Illnesses

Anxiety as a concept and as a disorder is related to many other disorders. It is especially common with posttraumatic stress disorder (PTSD), as PTSD was previously considered an anxiety disorder. Both PTSD and anxiety disorders involve worry, and avoidance of thinking about or being in situations. These thought and behavior patterns are especially common in generalized anxiety, agoraphobia, and social anxiety disorders. Anxiety is also related to depressive and bipolar disorders. Both anxiety and depressive disorders involve feelings of difficulty leaving the house and chronic social isolation. Similarly, depression and anxiety disorders feature worry, constant and intense focus on distress, low mood, and feelings of hopelessness. Anxiety is considered a risk factor for major depressive disorder.

Conditions such as coronary heart disease, bowel issues, asthma, and ulcers are often associated with anxiety, such that anxiety is a factor in the development of these disorders. Substance use disorders and anxiety are related as well. Many people may use substances to self-medicate fears and anxieties. For example, a person who has social anxiety may drink heavily before every social gathering to lower anxiety and feel able to socialize.

Finally, some anxiety disorders are related to each other. For example, although social anxiety is also known as social phobia, and as such, is often related to the other phobias. Panic disorders are also common in those persons with phobias.

Related Psychological Concepts

The term anxiety is often used interchangeably with fear and worry; however, they are separate psychological concepts. As previously described, anxiety is a future-oriented mood state with feelings of tenseness or uneasiness. Fear is a reaction to a specific real or perceived danger, and a present-oriented mood state. For example, a person with a phobia about dogs may feel anxious at imagining an encounter with a dog, and feel fear when in the presence of a dog. Fear can involve behavior as a response to a specific danger. Both fear and anxiety are considered to be highly adaptive in different situations.

Worry is not understood as an emotional reaction or response like anxiety and fear. Instead, it is a verbal expression of a thought process focusing more on negatives that may or may not occur. For example, a person may feel anxious about encountering a dog in the future, but worry obsessively over whether or not the dog will bite him or her.

Anxiety is also similar to paranoia, thoughts that are composed of anxieties and fears. Paranoia can be understood as more extreme than anxiety in many ways, as it can lead to delusions. Phobias, a class of anxiety disorders, are related to paranoia. Phobias and paranoia both contain elements of irrational fear and anxiety; however, paranoia also involves mistrust and blame whereas phobia does not contain blame.

Treatment or Reduction of Anxiety

In the past, treatment of clinical levels of anxiety focused more on analysis of danger; presently, the focus of many effective interventions is cognitive and behavioral change. Appropriate anxiety levels present during situations where it is adaptive, such as in dangerous situations, does not necessarily need to be treated. When anxiety is present in a more exaggerated form, such as extreme social anxiety or phobia, treatment is likely required. Teaching individuals coping strategies, such as problem-focused coping whereby a problem is managed or fixed by easing the problem, can be an effective part of therapy for an anxiety disorder. Other coping strategies such as teaching individuals to lessen negative reactions to anxiety-provoking situations can also be effective. A particularly effective therapy is exposure therapy, wherein the individual is repeatedly exposed to the anxiety-provoking event or object, and gradually learns to mitigate their anxious response to it. Relaxation techniques, such as deep breathing, can also be useful in decreasing emotional responses to anxiety-provoking objects and events.

Cognitive behavioral therapies are also effective, wherein the individual learns to redirect their attention away from the anxiety-provoking event or object, and practices positive self-statements. Individuals are taught to restructure irrational thoughts into constructive and positive thoughts, and many clinicians will have the individual practice these methods in real-life situations.

Some individuals who have anxiety may require anti-anxiety drugs to manage their condition. Benzodiazepines are drugs often prescribed to individuals with severe anxiety, as they induce a sense of calmness for the individual. Another set of drugs called beta-blockers can be effective in controlling social anxieties and stage fright. However, some individuals may need a combination of psychological and pharmaceutical therapies in order to overcome anxiety.

Future Directions

Although anxiety is common, clinicians have difficulty understanding and researching the multidimensionality of anxiety, with different manifestations of normal or clinical severity, and state or trait levels. Future research in anxiety may involve developing a theory that can encompass the entirety of anxiety, from genetics to cognition to environmental aspects. The difficulty is finding a single theory able to incorporate all of these aspects in a straightforward and meaningful manner.

See Also

Depressive Personality (Dysthymic Disorder)
Phobia
Test Anxiety
Trauma

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Authoritarianism

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Definition and a Portrait of Authoritarianism

Authoritarianism – a psychological construct which has been investigated since the nineteenth century – refers to an attitudinal orientation where individuals express hostility toward those who do not conform to an ideal of sameness or an expected way of being (e.g. minorities, deviants, and dissidents). Other characteristics of the authoritarian ideology are excessive concern for the opinions of authority, moral fixedness, preference for the government to be involved in personal matters, and conformist attitudes. In the political sphere, authoritarianism has been used to refer to specific political orientations, e.g. an authoritarian regime. However, in the psychological literature base, authoritarianism is seen in a broader sense and reflects a general orientation toward conformity versus deviance. In this entry, when the term authoritarianism is used it can be considered as equivalent to the term *right-wing authoritarianism* (RWA) which is frequently used by psychologists. Those who strongly endorse authoritarianism display a marked preference for both remaining connected with and valuing their ingroups over outsiders. Additionally, those who are more authoritarian have a greater tendency to endorse prejudice in varied forms (e.g. moral regulation or ethnocentrism). With regard to authoritarian thought processes, higher levels of authoritarianism have been linked with deficiencies in critical thinking as well as a belief in the world as being frightening and risk-laden.

Most research on authoritarianism tends to focus on those high in authoritarianism (i.e. those who demonstrate the most intolerance to difference). However, it should be acknowledged that authoritarianism falls on a spectrum, and those at the lower end (i.e. libertarians or low authoritarians) demonstrate a markedly different set of attributes. Those low on authoritarianism display more tolerance to diversity and support the idea that individuals should govern themselves. Furthermore, these individuals thrive in contexts of value and belief plurality. Unlike the literature on high authoritarians, less emphasis has been placed on studying low authoritarians. It should be noted that the high versus low distinction of authoritarianism is arbitrary, and individuals vary in their level of authoritarianism in nuanced ways.

Theoretical challenges were faced in the early conceptualization of authoritarianism. Teasing apart what authoritarianism is from what it is not and clearly delineating the boundaries of this construct has been a major aim of research. As an illustration, authoritarianism due to its influence in the sociopolitical arena has been viewed as interchangeable with constructs such as *conservatism*. However, endorsing conservatism involves being averse to changing the status quo, whereas endorsing authoritarianism does not mean one is change averse so long as the change is in accord with the goals of the collective. Another example would be that the closely related yet theoretically distinct variable of *social dominance orientation* – a preference in intergroup relations for either equality between groups or hierarchy where the ingroup is superordinate – was initially mistaken as a dimension of authoritarianism. This discrepancy was due to findings that both authoritarianism and SDO predicted outcomes which appeared linked to authoritarianism (e.g. prejudice). However, comparative investigations of SDO and authoritarianism have shown that the two constructs are distinct in terms of patterns of correlations with other variables, scale items, etc. Another challenge has been the creation of adequate measurement tools to aid in the study of authoritarianism because most measures have been unable to balance grounded theory with strong empirical support.

Components of Authoritarianism: An Elaboration

The construct of authoritarianism subsumes three key underlying concepts which are authoritarian aggression, authoritarian submission, and conventionalism. Authoritarian aggression is the idea that authoritarians promote aggressive behaviors toward others when such behavior is supported by authority figures. This aggression is commonly directed toward those who are noticeably different (e.g. a social deviant), but can expand to anyone in the disfavor of authority figures. Authoritarian submission is the belief that members of authority (e.g. religious and political leaders) should be fervently supported. In the case of family, parental figures are seen as credible sources of authority by authoritarians. Some research suggests that while authoritarians do submit to authority, this depends on whether the authority figure has a good reputation and their actions are perceived as being in line with the goal of the collective. The degree of submission shown by authoritarians varies based on the credibility of the authority figure. Lastly, conventionalism is the principle that the existing social norms and order should be maintained.

Sources of and Influences on Authoritarianism

Early theorists posited that authoritarianism stemmed from how parents raised their children. It was believed that parental childrearing styles which involved punishment and inflexible adherence to rules set the stage for authoritarian tendencies. Genetics have also been implicated as a source of authoritarianism, and traits such as religiousness and traditionalism which are part of the theoretical core of authoritarianism as well as the RWA scale itself have shown good heritability. Support for a personality-based genesis of authoritarian tendencies and ideology stem from findings which show that certain Big Five personality

dimensions are antecedents of authoritarianism. To elaborate, lower levels of Openness to Experience – specifically for the intellect facet and to a lesser extent for the openness facet – have been demonstrated to predict greater authoritarianism in large-scale meta-analytic research. Facets of both Conscientiousness and Neuroticism have also been implicated with greater authoritarianism, however these findings need further corroboration.

An environmental influencer of authoritarianism is social learning. To elaborate, individuals from a young age imbibe what authoritarian values are either through explicit teachings of key individuals such as parents, through mimicking idealized others, or through precursors of authoritarianism which stem in adolescence. Education has been implicated as yet another cause of authoritarianism. To expand, higher education is believed to have ameliorative effects in that those graduating from a university display lower levels of authoritarianism. Education both increases the exposure to diverse values and beliefs and enhances individuals' cognitive capacities to handle difference. An alternative account for the education effect is that education may simply be training individuals to demonstrate political correctness in situations of diversity as opposed to causing transformative change toward an innate preference for difference. The explanations delineated above suggest that both intrinsic and external factors play a role in determining authoritarianism.

Cultural Variation in the Expression and Endorsement of Authoritarianism

Across cultures, representative elements of authoritarianism consistently emerge. However, within cultures, individuals fluctuate on a spectrum in terms of their adherence to and endorsement of authoritarian values. Large sample cross-cultural data reported in the World Values Survey offer illuminating insights into how authoritarianism varies and what effects it exerts in different cultural contexts. The take-home message from the cross-cultural data suggests that authoritarianism contributes significantly to generalized intolerance, and that irrespective of the cultural groups involved, authoritarianism drives individuals toward a stance of reducing differences. However, the cross-cultural findings also indicate that in contexts of value and belief diversity, the effects of authoritarianism on being intolerant become exacerbated.

Modern Conceptualization

The modern conceptualization of authoritarianism explicitly acknowledges that the interactive effects between the person with authoritarian predispositions and the environment either trigger or suppress the expression of authoritarian attitudes. To elaborate, the context of being in a threatening situation such as one where individuals diverge in values and beliefs can polarize those with higher authoritarian predisposition toward more authoritarian attitudes. In contrast, those with lower authoritarian predisposition (i.e. libertarians or non-authoritarians) demonstrate more tolerant attitudes. However, some evidence has suggested that highly authoritarian individuals can be conditioned to demonstrate more

tolerant attitudes in spite of their cognitive inflexibility. Using a rigorous experimental design, Karen Stenner (2005) created a condition where participants were led to believe a fake news claim that otherworldly life-forms (i.e. aliens) exist. Those in the alien condition who were higher in authoritarian tendencies were more tolerant in their attitudes, and this is attributed to the idea that aliens represent an extreme outgroup that makes existing outgroups (e.g. minorities) seem more similar. This finding suggests that authoritarianism can be suppressed by emphasizing commonalities between ingroups and outgroups which in turn blurs the "us" vs. "them" boundary.

Measurement Tools and Associated Challenges

Although a host of research tools are available for the study of authoritarianism, only the best-known tools will be described here. One of the earliest and most contentious measures of authoritarianism is the Fascism (F) Scale by Adorno, Frenkel-Brunswik, Levinson, & Sanford. The F Scale is based on the psychodynamic account of authoritarianism where harsh parenting leads to the endorsement of fascist and intolerant beliefs among high authoritarians. The F Scale has been met with criticism on both empirical and theoretical grounds. In terms of empirical critique, the soundness of the scale has been called into question due to item-wording in only the positive direction, *acquiescence bias* – tending to respond in the affirmative – and contrived unidimensionality (i.e. the artificial appearance that all items belong on a single authoritarianism factor). With regard to theoretical critique, it has been argued that the sampling domain of this scale is too large and includes disconnected elements such as sex and objectivity with more central elements such as submission and aggression.

In order to remedy the challenges of the F Scale, researchers have attempted to either fix the F Scale with further test development or to form revised conceptualizations and scales of authoritarianism such as the Dogmatism "D" Scale which taps into individual levels of closed-mindedness and rigidity. At present, the Right-Wing Authoritarianism Scale by Bob Altemeyer is the standard measurement instrument for this construct. The RWA Scale samples from a subset of the domains on the F Scale and it focuses on the components of authoritarian submission, authoritarian aggression, and conventionalism. The RWA Scale empirically outweighs the F Scale given that both positive and negative item-wording are used and test construction theory has been referred to in the developmental stages. However, some criticisms are that the scale creates an artificial typology where more is known about high-scorers than low-scorers, the scale content is ambiguous in that some items tap into multiple domains, etc. One alternative to the RWA Scale is a short questionnaire of authoritarian inclination which asks participants their preference between pairs of terms, e.g. "obey" versus "question" with a preference for the former indicating authoritarianism.

See Also

Hostility, Personality Correlates
Personality and Prejudice

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Personality Correlates of Behavioral Inhibition/Activation

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Overview

The Behavioral Inhibition System (BIS) and Behavioral Activation System (BAS) describe underlying neurophysiological systems that govern the relationship between one's affective state and behavior, and together comprise Gray's Biopsychosocial Theory of Personality (1981). Broadly speaking, these systems characterize aspects of nervous system functioning that explain individual differences in responsivity to environmental cues, namely motivation and approach behavior. Specifically, the BIS is thought to regulate sensitivity to punishment and regulates approach behavior with the purpose of avoiding or lessening contact with threat, danger or unpleasant environmental cues. On the other hand, the BAS regulates sensitivity to reward and elicits approach behavior with the goal of gaining something desired. Behaviorally, BIS sensitivity is associated with increased perceptions of threat, fear, reticence in novel environments, greater expressions of negative affect, and generally inhibited behavior. In contrast, BAS sensitivity is associated with goal-directed behavior, extraversion, increased perceptions of reward, and greater expressions of positive affect. The BIS and BAS are thought to act antagonistically, where increased sensitivity of one system is often associated with decreased sensitivity of the other. For instance, individuals who are behaviorally inhibited, introverted, and prone to anxiety tend to engage less in potentially rewarding behavior, are less impulsive, and experience less positive emotions in contexts of potential reward. Theoretically, the relative sensitivity of these systems represents two broad and independent dimensions of personality: trait anxiety and impulsivity.

The Behavioral Inhibition System and Trait Anxiety

Historically, the BIS was thought to become activated when threat is encountered and to result in avoidance behavior. However, recent theories emphasize the specificity of BIS activation to approach-avoidance conflicts that arise when the animal is required to

approach a threat in order to achieve a desirable goal; here, the animal has to evaluate the risks against the potential reward in approaching the stimulus. An apparent approach-avoidance conflict leads to the activation of a cascade of processes that are directed at reducing contact with threat, while at the same time achieving the desired goal. This would include inhibition of dominant responses, hypervigilance, risk assessment, and cautious approach behavior. Essentially, BIS activation results in interruption of ongoing behavior as a resolution to the approach-avoidance conflict, and both avoidance and vigilant approach can be viewed as its behavioral consequences. A notable example of BIS activation can be seen in public speaking, an activity that involves an element of social evaluation, often perceived as threatening or unpleasant, but that is also a necessary component in many professional settings. Similarly, novelty can elicit BIS activation, where the unknown stimulus can be both rewarding and aversive, giving rise to the approach-avoidance conflict. For instance, the BIS is activated to resolve the conflict that arises when an animal forsakes safety and ventures into novelty to obtain food, resulting in increased scanning behavior. Accordingly, the BIS can be thought of as consisting of cognitive and physiological components that govern perception and ensuing behavior, respectively. At the cognitive level, BIS activation engages attentional processes, and is associated with sensitivity to unexpected stimuli and detection of conflicts in behavioral tendencies. Consequently, recruitment of these processes results in physiological hyperarousal and/or halting of ongoing behavior.

The BIS is thought to be composed of the septo-hippocampal system which receives input from the prefrontal cortex and projects to brainstem areas such as the locus coeruleus. The functioning of this system is primarily mediated by serotoninergic neurotransmission between structures. Recent studies implicate the hippocampus, the anterior cingulate cortex (ACC) and the amygdala as key players in the BIS system. The hippocampus and ACC are mainly responsible for its conflict monitoring function, and may specifically respond when the approach-avoidance conflict is detected. Increased activation of the amygdala has been observed experimentally in response to threatening and ambiguous stimuli, highlighting the involvement of this area in the BIS's heightened responsivity to threat.

Individuals with elevated BIS sensitivity, then, are highly responsive to cues of potential punishment or threat compared to those with lower BIS sensitivity, exhibiting trait anxiety, or anxiety proneness. This trait is both heritable and stable across time, emerging early in life and persisting throughout development. Indeed, behavioral inhibition, a relatively stable trait that correlates with neurobiological measures of BIS activation, emerges as early as the second year of life, and describes children who tend to display marked fear, diminished activity, and heightened vigilance in unfamiliar situations. Moreover, elevated BIS sensitivity correlates positively with measures of neuroticism and negative affectivity, personality constructs that relate to greater reactivity to stress and a tendency to experience negative emotions.

The Behavioral Activation System and Impulsivity

Aversive motivation is certainly not sufficient to explain individual differences in approach behavior, and must be complemented by a system that governs appetitive motivation. The Behavioral Activation System (BAS; also referred to as the behavioral approach system and

behavioral facilitation system) underlies sensitivity to reward and facilitates engagement with the environment with the goal of achieving something desired. Once a rewarding stimulus is perceived, two components of BAS that facilitate approach are initiated: motor activity toward the desired object or situation and positive affectivity. Stimuli that activate the BAS are inherently and potentially rewarding, and include food, mating, and novelty. Moreover, the BAS may be activated to facilitate active avoidance of possible punishment, for instance through aggressive attack of a potential threat. Individuals with elevated BAS sensitivity display persistent pursuit of desired goals, continually desire new rewards, are more willing to approach a potentially rewarding stimulus on impulse, and experience greater positive emotions in response to reward. Accordingly, these individuals are generally described as extroverted, whereby their sociability and novelty-seeking can be attributed to elevated BAS sensitivity.

The neurobiological mechanisms of the BAS are not as well understood as those of the BIS. However, there is converging evidence for the involvement of a dopaminergic pathway between the "reward centers" in the brain, namely the ventral tegmental area, nucleus accumbens, and ventral striatum (described in great detail by Richard Depue and William Iacono (1989)). These areas project to other areas that are involved in motor function and emotional processing (e.g. prefrontal cortex and amygdala), suggesting that they may initiate the locomotor and affective functions of the BAS.

BIS/BAS and Psychopathology

Consistent with the view that psychological disorders lie on a spectrum of normal to abnormal behavior, a suite of disorders manifests at the extreme ends of BIS and BAS sensitivity. Anxiety disorders are characterized by extreme worry and fearfulness of the future (as in Generalized Anxiety Disorder), as well as certain situations (as in Social Anxiety Disorder, Separation Anxiety Disorder, Panic Disorder and Agoraphobia) and objects (as in Specific Phobia). Accordingly, extreme BIS sensitivity is thought to underlie these disorders and explain why clinically anxious individuals tend to perceive threat in seemingly benign stimuli and are more likely to display avoidant behavior and to experience negative emotions. In contrast, elevated BIS sensitivity *accompanied* by decreased BAS sensitivity have been linked to depressive disorders, and this pattern is suggested to explain the negative emotions reported by depressed patients as well as their lowered responsiveness to reward and decreased motivation to pursue rewarding stimuli. This latter aspect is also referred to as anhedonia, a hallmark symptom of Major Depressive Disorder. Attention-deficit hyperactivity disorder (ADHD) is characterized by disinhibited behavior and impulsivity that are thought to result from reduced BIS sensitivity, whereby there is insensitivity to cues of threat, as well as elevated BAS sensitivity, whereby there is heightened sensitivity to reward. Consequently, the individual displays a greater tendency to seek and engage in rewarding behavior, and fails to regulate (and halt) ongoing behavior when threat is presented. Extreme BAS sensitivity has been suggested to underlie mania, a component of Bipolar Disorder that is characterized by clinically impairing levels of goal-directed activity, reward seeking, and elation. Accordingly, these patterns of association between BIS/BAS

sensitivity and psychopathology underscore the value of studying the functioning of both systems when examining their behavioral correlates.

Measurement

Conceptualization of the BIS and BAS offers a theoretical framework for explaining individual differences in motivation, and the personality dimensions that arise from these differences. Since the emergence of this theory, supporting evidence from self-report, psychophysiological, and neurobiological measures has been reported. The most widely used assessment tool for studying the BIS and BAS sensitivity is the BIS/BAS scale developed by Charles Carver and Teri White (1994). This self-report measure consists of 24 statements that tap elements of behavioral inhibition and activation. Respondents are asked to rate how much they agree with each statement on a four-point scale, with "1" being complete agreement and 4 being complete disagreement. The BIS scale consists of seven items that assess the individual's reported likelihood of experiencing anxiety across situations. The BAS items fall into three scales that are empirically supported elements of behavioral activation: Drive, Fun Seeking, and Reward Responsiveness. Lower scores reflect greater endorsement of items and heightened sensitivity for each scale.

Psychophysiological measures generally tap sympathetic and parasympathetic nervous system activation that are hypothesized consequences of BIS and BAS activation. Outputs of these systems include cardiac reactivity, measured using electrocardiography (ECG), and electrodermal responding, also known as skin conductance. These measures are usually done during tasks of reward and frustrative non-reward, and therefore may not necessarily index state sensitivity of the BIS and BAS, but rather their context-dependent reactivity. As such, these measures provide independent information on BIS and BAS activation from that obtained using self-report scales.

The advent of brain imaging technology has further enabled investigation of neural correlates of the BIS and BAS, and allowed verification of the early theories about implicated brain areas. Electroencephalography (EEG) is a cost-effective tool for measuring instantaneous activity of the brain systems proposed to underlie the BIS and BAS functioning. Brain regions involved in BIS functioning are thought to be lateralized to the right hemisphere, whereas those involved with the BAS are lateralized to the left. Accordingly, behavioral withdrawal will be associated with greater *right* resting frontal cortical activity, and approach behavior will be associated with greater *left* resting frontal cortical activity. Together, this pattern of activation is referred to as "frontal asymmetry." Finally, functional magnetic resonance imaging (fMRI) allows direct measurement of the activation of specific brain areas during reward and threat tasks, offering further insight into the neural processes governing the BIS and BAS.

To sum up, the BIS and BAS comprise structurally distinct neurophysiological systems whose activity can be measured independently, and appear to govern different facets of approach behavior. These systems are activated differentially across individuals and correspond to independent dimensions of personality. Abnormalities in their relative sensitivity are associated with several psychological disorders, and identifying their contribution to these disorders can guide both prevention and intervention.

See Also

Extraversion, Personality Correlates of
Impulsivity
Neuroticism, Personality Correlates of
Psychophysiological Assessment (ECG, EMG, EDA, GSR)

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Big Five Model of Personality

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Overview

The Big Five (sometimes referred to as the Five Factor Model) is a widely accepted model of human personality traits. It includes five broad dimensions, also called factors, used by many psychologists to describe and label personality characteristics. These factors are thought to represent the basic underlying structure behind all personality traits. The Big Five consists of five broad factors of personality traits: *Extraversion, Agreeableness, Conscientiousness, Neuroticism,* and *Openness to Experience*. This concept of personality, as we currently understand it, has a long history with many contributors. The Big Five has its early roots in the late 1930s, where psychologists turned to natural language as the source of identifying attributes for a personality naming structure. The work began with a lexical approach of extracting all personality-related terms from the dictionary; this *lexical hypothesis* logic suggests that most of the socially relevant personality characteristics are encoded in our natural language. At first there were a multitude of terms, with words in the many thousands, however, through the work of multiple research groups over many years, psychologists identified common themes in the language, and the identification of specific themes (clusters of words) began to emerge. While the specific labels applied to these dimensions varied between researchers, the underlying themes were extremely similar and a consensus among researchers became more pronounced.

While sometimes referred to as a theory of personality, the five factors were determined through exploratory factor analysis, a statistical technique used to analyze ratings of correlated personality traits. As such, the Big Five is more appropriately understood as an empirically-based model of personality. With the same set of five relatively independent factors appearing consistently across several studies, this factor structure was refined and eventually became known as the Big Five (Goldberg, 1981). The title of "Big Five" was given to emphasize the broadness of each of the factors, and does not imply that personality can be reduced only to five traits. Instead, the five dimensions represent personality at its broadest level, with each dimension summarizing a number of distinct personality characteristics.

The five factors of this model are orthogonal, meaning that getting a high or low score on any one of these traits does not necessarily determine a specific score on any of the other traits. The factors are therefore independent, and in general do not highly correlate with one another. This particular model is extremely useful and well recognized, as it provides a robust and comprehensive framework for describing and comparing individuals. This characteristic makes this relatively short list of personality dimensions very valuable, because it encompasses a wide range of traits that can summarize the majority of measureable personality characteristics. As a result, the Big Five model is utilized as the underlying factor structure for a variety of personality assessments, one of the most predominant assessments being the *Revised NEO Personality Inventory* (NEO-PI-R). The full version is composed of 240 questions intended to measure the Big Five personality traits, as well as six subordinate dimensions (called facets) of each main personality factor.

Factor Stability and Heritability

The Big Five personality dimensions provide investigators with a group of highly replicable and reliable factors that parsimoniously and comprehensively describe most individual differences. One important consideration when assessing reliability is the stability of the individual differences. Specifically, this refers to the extent to which individuals maintain the same rank-order along the different dimensions over time. Therefore, the way an individual scores on a particular factor (high vs. low) will remain consistent over time, even if the individual's overall score changes on future assessments of this factor. Research using both self-report and observer ratings show strong evidence that the Big Five are stable over time. The stability of the Big Five has been studied over a number of years ranging from three-year studies to 30-year studies, and all demonstrate similarly high stability values; specifically, the stability tends to be particularly high throughout the adult years. In addition to longitudinal stability, this factor structure has also maintained its effectiveness across cultures. The Big Five factor structure shows stability in many rigorous cross-language replication tests, demonstrating broad generalizability across cultures, including in Germany, Italy, and Japan.

It is well accepted in personality research that genetic factors account for approximately 30–50% of the variance in personality traits. The heritability of the Big Five has been studied extensively, and overall, the heritability estimates are quite substantial, ranging from 43% to 54%. While research on the genetic influences of all five traits is plentiful, the majority of research in this area has focused on Neuroticism and Extroversion. Research suggests that Neuroticism and Extroversion have very strong underlying genetic components. In contrast, research on the heritability of Agreeableness is quite inconsistent, suggesting a strong genetic underpinning may not be as clear in this trait.

Extraversion

Extraversion as a personality trait is defined as a keen interest in other people and external events, and the willingness and confidence to try new things. The broad dimension of

Extraversion incorporates more specific personality traits such as talkative, energetic, and assertive and is associated with the tendency to seek stimulation from the company of others.

The bipolarity of the dimension can be understood as people-oriented and outgoing versus solitary and reserved. At the extremes, those who demonstrate very high Extraversion can often be perceived as domineering or attention seeking, while very low Extraversion results in a more reflective, reserved personality that may be perceived as aloof. The NEO-PI-R measures the following six underlying facets within the Extraversion dimension: warmth, gregariousness, assertiveness, activity, excitement seeking, and positive emotion. The type of items you might see on an assessment measuring Extraversion would look something like "*I am comfortable starting conversations with strangers*" or "*I enjoy attending parties.*"

Agreeableness

Agreeableness as a personality trait is defined as the extent to which individuals get along with others, and how compatible they are with other people. The dimension of Agreeableness encompasses personality traits such as cooperative, warm, and considerate and is associated with the tendency to be generous and sympathetic toward others.

Agreeableness can be understood as friendly and compassionate at one end of the spectrum and analytical and detached at the other. Those at the highest level of the spectrum of Agreeableness can sometimes be perceived as naïve or passive, while those very low in Agreeableness can seem argumentative and competitive. The NEO-PI-R measures the following six underlying facets within the Agreeableness dimension: trust, straightforwardness, altruism, compliance, modesty, and tendermindedness. The type of items you might see on an assessment measuring Agreeableness would look something like "*I am interested in other people*" or "*I sympathize with other people's emotions.*"

Conscientiousness

Conscientiousness as a personality trait is defined as being careful, self-disciplined, and vigilant. Conscientious individuals are characterized by thinking carefully before acting, and as having a strong desire to do a task well. The dimension includes personality traits such as efficient, dependable, and organized.

The bipolarity of the dimension can be understood as organized and efficient versus disorderly and spontaneous. At the extremes, those very high in Conscientiousness can sometimes be perceived as obsessive and stubborn, while those low in Conscientiousness are thought to be easy-going, but sometimes unreliable and chaotic. The NEO-PI-R measures the following six underlying facets within the Conscientiousness dimension: competence, order, dutifulness, achievement striving, self-discipline, and deliberation. The type of items you might see on an assessment measuring Conscientiousness would look something like "*I like to follow an agenda*" or "*I get my tasks done early.*"

Neuroticism

Neuroticism as a personality trait is defined as the tendency to be in a negative emotional state and experience unpleasant emotions such as worry, anger, frustration, and envy. It is often characterized by an individual's degree of emotional stability and impulse control. The dimension includes traits such as being tense, moody, and anxious.

Neuroticism can be understood as sensitive and nervous at one end of the spectrum versus secure and confident at the other end. Those who exhibit higher levels of neuroticism tend to appear reactive, unstable, and insecure, while individuals low on neuroticism seem stable, calm, and unconcerned. The NEO-PI-R measures the following six underlying facets within the Neuroticism dimension: anxiety, hostility, depression, self-consciousness, impulsiveness, and vulnerability to stress. The type of items you might see on an assessment measuring Neuroticism would look something like "*I am very easily bothered by things*" or "*My mood changes often.*"

Openness to Experience

Openness to Experience as a personality dimension generally refers to how willing individuals are to make adjustments in their lives and how open they are to new ideas and situations. It is characterized by creativity, intellectual curiosity, and having a wide variety of interests. The dimension includes personality traits such as imaginative, curious, and insightful.

The bipolarity of the trait can be represented by curious and inventive at one end of the spectrum versus consistent and cautious at the other end. Those extremely high in Openness might be perceived as lacking focus or being unpredictable, while those very low in Openness are often seen as closed-minded and overly pragmatic. The NEO-PI-R measures the following six underlying facets within the Openness to Experience dimension: fantasy, esthetics, feelings, actions, ideas, and values. The type of items you might see on an assessment measuring Openness to Experience would look something like *"I am very creative"* or *"I am eager to try new things."*

Criticisms and Additional Considerations

Labeling people with regard to their Big Five personality dimensions cannot alone provide an explanation of the personality processes that underlie and account for the trait phenomena we observe in individuals. It is a model of the personality attributes that demonstrate individual differences, and as such, it is descriptive rather than explanatory. Furthermore, while the Big Five provides a comprehensive organizing structure for most personality attributes, it is not perfect. The major criticism surrounding the model is concerning the number of factors; some researchers suggest that evidence shows there should be additional dimensions, while others suggest fewer would be better.

One of the criticisms of the Big Five is that the model has too many factors, and that personality can be more succinctly categorized into fewer dimensions. Arguably, the best-known competing model is the Eysenck Personality Inventory, which consists of only three factors, conceptualized as biologically-based independent dimensions of temperament. These three factors are: Extroversion/Introversion, Neuroticism/Stability, and Psychoticism/Socialism. It is clear that there are conceptual overlaps with the Big Five, however the argument for this model is that the additional breakdown of the primary factors is unnecessary.

On the contrary, there is a strong argument that the Big Five is too limited and that additional factors must be added to enable a comprehensive assessment of personality. One predominant alternate model is the HEXACO. This model was suggested based on the findings of lexical studies in European and Asian languages, which suggested that full replications of the Big Five model were not possible as a result of a missing dimension. The HEXACO is built upon the foundation of the Big Five, however this model conceptualizes personality in terms of six dimensions rather than five. It is unique primarily because of the addition of the *Honesty-Humility* dimension not addressed by the Big Five model, and consists of the following six dimensions: *Honesty-Humility (H), Emotionality (E), Extraversion (X), Agreeableness (A), Conscientiousness (C),* and *Openness to Experience (O)*. Like the Big Five, the model was developed using trait-taxonomy methods, and each factor is composed of traits with characteristics indicating high or low levels of the factor.

The Big Five has been studied extensively for many decades and has consistently been at the heart of personality research. In recent years, however, there has been an influx of research focusing in on the concept of the General Factor of Personality (GFP), which suggests that much like the general factor of cognitive ability, *g*, there is a hierarchal structure of personality with the GFP serving as the apex of personality factors. Future research in the realm of personality and the Five Factor Model may soon see a shift, moving from this traditional multi-factor model to a general factor model outlining human personality traits.

See Also

Eysenck Giant 3
Eysenck Personality Questionnaire-Revised (EPQ-R)
Factor Analysis in Personality Research
General Personality Factor
Hexaco
Revised NEO Personality Inventory (NEO-PI-R)

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Cognitive and Personality Correlates of Achievement

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The link between learning and both intelligence and personality has been of longstanding scholarly and scientific interest, with roots dating back millennia to early philosophical discussions concerning individual differences in human performance. Within the more recent history of cognitive and personality measurement (beginning around the early 1900s), advancements have been made in understanding which abilities and characteristics are of most importance to optimize academic trajectories and explain underperformance. Specific to cognition, research has consistently supported measures of intellectual ability (i.e. IQ) as good predictors of school achievement. Initially, global IQ scores were used to categorize who would and would not benefit from education and training, with certain groups deemed "untrainable." With advancements in measurement and practice, IQ scores have been used to guide a greater range of educational and instructional decisions. Researchers are beginning to more fully understand well-developed cognitive processes, which can be harnessed to support educational success, as well as under-developed (or disordered) processes, which contribute to the intractable learning difficulties and underperformance characteristic of certain populations (e.g. individuals with a specific learning disability).

There is considerable evidence to suggest that being a highly successful learner is more dependent on cognitive ability than on non-cognitive (personality) variables, such as self-confidence, conscientiousness, and achievement motivation. However, personality characteristics are also a significant determiner of several achievement outcomes. Our current understanding of the personality-achievement link is likely somewhat limited given that personality factors have been given less attention within educational contexts, particularly when compared with other factors (e.g. cognitive, motivational, environmental). However, there are notable increases in educational research and practice in which consideration is conjointly given to cognitive- and personality-related factors.

Intelligence's Contribution to Academic Achievement

Intelligence is generally defined as one's capacity to learn, reason, plan, and problem-solve. Brain imaging and neuropsychology studies have demonstrated that there are neuropsychological, functional, and sometimes anatomical differences between students who perform well academically and those who struggle. For example, poor readers are more likely to show activity in brain areas that are less efficient in processing written material (e.g. over-reliance on the right hemisphere for decoding) and fail to effectively recruit areas necessary for proficient reading (e.g. occipital lobe for orthographic processing).

More recent work, adopting multifaceted models and measures of intelligence, has furthered our understanding of the link between cognition and achievement. One existing theory of intelligence, the Cattell-Horn-Carroll (CHC) theory, which conceptualizes general intelligence (often referred to as "g") as being composed of nine broad abilities each made up of narrow abilities, has provided insight into the cognitive correlates of academic achievement. Recent findings suggest that while the broad abilities provide average predictive validity, the narrow abilities are actually better suited to understanding achievement in specific academic areas and in informing intervention planning. For example, specific narrow abilities, such as processing speed and short-term memory, predict basic reading skills. Further, the strength of the relationship between a cognitive correlate and a specific area of academic achievement (e.g. decoding, vocabulary, comprehension) varies by age and may be differentially important for individuals from different cultural groups.

Contributions of Executive Functioning

Executive functioning, as a more recently examined contributor to achievement, is a constellation of skills that work together in helping individuals complete tasks by directing other cognitive processes, and it includes multiple components such as inhibition, planning, monitoring, shifting, and flexibility. Executive functions organize, direct, and co-ordinate the other thinking functions as an individual completes a task. While research examining the relationship between specific areas of executive functioning and academic achievement is still limited, we know that at least some components of executive functioning affect academic performance. Consequently, children who have intellectual and academic skill strengths sometimes perform poorly in school due to poor executive functioning (e.g. not turning in work, not checking work for errors, etc.). The role of executive functioning in the acquisition of academic skills appears to be of particular importance in primary school-aged children, with the most growth in executive functioning occurring during early elementary school.

Contributions of Working Memory

Working memory is often listed as an executive function, but its significant contribution to academic achievement warrants examining it specifically. Working memory is the capacity to hold information in one's mind and to manipulate it, while short-term memory solely relates to storage and retrieval. Working memory is important in many areas of academic achievement, and some studies have found it to predict future academic

performance better than IQ. For example, impaired working memory performance predicts a mathematics learning disability as well as previous math skills, and working memory performance is a strong predictor of future math performance. Children with compromised working memory struggle with the routine demands of academic activities such as following multi-step directions and recalling previously learned information, resulting in missed learning opportunities and academic failures, which have a detrimental impact on overall academic outcomes.

Personality's Contribution to Academic Achievement

While it is clear that cognition plays a significant role in academic outcomes, certain personality characteristics have also been identified as important predictors of a range of learning outcomes (academic performance, academic engagement, job performance). While there are multiple theories of personality, the Big Five is one of the most researched and well-known theories. It is composed of five attributes, each of which is a continuum: openness (curiosity, open to new ideas), conscientiousness (organized, dependable), neuroticism (anxious, temperamental), extraversion (outgoing, talkative), and agreeableness (affable, kind). Conscientiousness is a strong predictor of academic achievement from preschool through postsecondary. Additionally, openness is positively correlated with achievement. However, extraversion and agreeableness are not related to academic achievement, and neuroticism is negatively correlated with academic achievement.

It appears then that how an individual thinks about and approaches learning (in terms of one's personality) matters – and some personality characteristics matter more than others. As such, both intelligence and personality are important contributors to academic success. However, personality is arguably the more "important" of these two factors. While both personality and intelligence are considered stable factors, personality is somewhat more amenable to intervention. That is, there is evidence that personality can be shaped and influenced more than intelligence. For example, Carol Dweck has found that the adoption of a growth mindset, the belief that intelligence can be developed, is linked to increases in the value placed on learning, resilience in the face of setbacks, effort, and persistence. Ultimately, the integration of a growth mindset into one's beliefs has been found to increase academic outcomes, particularly for groups at risk for low achievement.

Future Directions

A small but growing number of researchers are beginning to examine learner profiles to identify person-specific factors impacting academic outcomes. Representing a significant departure from the more typical approach of seeking to identify general patterns of performance at the group level (i.e. the types of cognitive and personality correlates of achievement initially described), this approach focuses on the identification of strengths and weaknesses (PSW) specific to each learner. To date, this research has primarily focused on identifying cognitive and academic profiles in individuals with specific learning disabilities. The PSW approach holds broader promise, however, as a multimethod assessment approach

that allows for greater consideration to be given to both cognitive and non-cognitive factors. Patterns of discordance, defined as significant differences between performance on cognitive processing tasks and related achievement measures, are identified and then further investigated and verified via ecological markers (e.g. teacher and parent reports). In the instance of an individual who has working memory deficits, ecological markers could also point to personality characteristics that contribute to a difficulty in flexibly maintaining and updating information in active memory (e.g. perseveration). Such approaches are not without controversy as parallels have been drawn to the largely unsuccessful aptitude-by-treatment (ATI) approaches of the early 1980s. However, these approaches are appealing because they appear better positioned to examine the heterogeneity of abilities and personal characteristics that contribute to academic success. Proponents of the PSW approach additionally argue that it yields a comprehensive performance profile that can that be used in the design of interventions programs to enhance academic outcomes.

Further study of the link between achievement and both cognition and personality will need to reconcile the increasingly narrowing distinction between these three areas. While simple distinctions (e.g. intelligence as a hard-wired general capacity versus achievement as an acquired expertise in a domain) were useful in early investigations in this area, there is increased recognition that intelligence, personality, and achievement are not discrete entities but rather constitute highly interrelated skills and processes. An example of the difficulty in parsing cognition from achievement is the often-cited criticism that intelligence tests measure, at least in part, an individual's past exposure to certain cultural activities and learnings (e.g. mazes, vocabulary). There is also the well-established finding that some tasks on intelligence tests are susceptible to a practice effect in which repeated exposure to test items results in *learning* of certain test processes and increased scores over multiple test administrations. There are also multiple examples of the difficulty in parsing what is a cognitive ability from a personality characteristic – take, for example, self-regulation. Viewed as a *style*, it is an integral aspect of personality. Viewed as a *complex skill*, it is linked to executive functioning. Perhaps the quintessential example is emotional intelligence (EI). Various models exist in which it is conceptualized as a form of intelligence, a personality-like trait, or a combination of the two (mixed model).

This overlap between cognition, personality, and achievement becomes even more pronounced when considering the shifting focus of schooling. Whereas education has long emphasized mastery of a specific school curriculum, education for the twenty-first century learner focuses on equipping students with the knowledge and skills needed to be life-long learners. Critical thinking and problem-solving, long equated with cognition, are now being identified as central educational outcomes and learning objectives. Non-cognitive factors, such as personality, are also growing in popularity with the education community. It is now commonplace for educational standards to focus on the development of both academic and personality-type goals emphasizing the development of students as *engaged thinkers* and *ethical citizens*, who possess an *entrepreneurial spirit*. Lipnevich and Roberts (2012) have noted that non-cognitive factors have been incorporated into national curriculums and international assessments that, in turn, influence educational and economic policies (e.g. PISA). Future directions thus include not only a more integrated, multimethod study of cognitive and personality correlates of achievement but also the greater inclusion of cognitive and personality learnings as educational outcomes.

See Also

Assessment of Intelligence, General Features and Methodological Issues
Big Five
Conscientiousness
Educational Ability Testing (GRE/MAT/MCAT/LSAT)
Intelligence-Personality Association, Assessment of
Wechsler Memory Scales (WMS-III)

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Compassion

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Definition of Compassion

Most people have witnessed or perceived the suffering of others or have themselves been hurt by others, emotionally as well as physically. Peoples' responses when this happens differ widely. Compassion or co-suffering – from the early Latin *com* (with) and *passus*, the past participle of *patior* (to suffer or endure) and the late Latin *cum* (with) and *compassio* (sympathy) – is widely regarded as an exceptional virtue. While compassion is generally considered to be exclusive to human beings, there is proof that some animals (e.g. chimpanzees, elephants, and cats) also display compassion towards other members of their species.

Compassion means to be aware of the suffering or pain of someone else, to feel with someone else, to consider oneself as being in the same position as someone who is experiencing hurt, pain, sorrow, grief, or misery. Compassion also denotes a desire followed by appropriate action to alleviate or moderate the pain and suffering of the sufferer and to help the person in need, pain, or distress. The statement, "I will fetch your family from the airport and take care of your children so you can focus on arranging your mother's funeral," is an example of compassion.

Compassion has nine dimension, all of which are related to the concept of personality. First, it has a focus dimension: the compassionate person shows a keen interest in the plight of the sufferer. Second, it implies an emotional involvement with the sufferer (feeling with the sufferer). Third, it has an observational dimension (observing suffering). Fourth, it has an attitudinal dimension (displaying empathy or strong feelings of sympathy towards the sufferer). Fifth, it has a cognitive dimension (assessing what is happening to the person and trying to make sense of the suffering; being able to recognize or identify the feelings of others). Sixth, it has a volitional dimension (displaying the will to do something about another person's suffering; to help the person or be useful to her or him). Seventh, it has a communication dimension (feelings of empathy are conveyed to the sufferer). Eighth, it has a behavioral or an actionable dimension (believing the situation warrants an attempt

to try and change it and actually taking action to alleviate the person's suffering). Ninth, it has an interactive dimension (communication takes place between the compassionate person and the sufferer).

Goetz, Keltner, and Simon-Thomas (2010) found that compassion is associated with different behavioral manifestations and physical responses. The authors distinguish between compassion as a state and as a trait. Both can be linked to views on how compassion evolved. First, compassion is considered a caregiver's (parental) response to the need to protect their progeny. Second, it is believed that compassion developed because it was thought that it increased a person's chances of selection during the mating process. Third, compassion is considered a desirable trait as it enhances relationships between people.

Because of the deep sense of understanding and insight that is generated through compassion, it can sometimes be felt even for someone who has hurt or insulted one. Placing oneself in the position of the other person and understanding the reason for his or her actions or attitude may make it possible for the "victim" to forgive the "perpetrator" and move on with his or her life. Showing compassion can also have substantial benefits for "forgivers." It can make them happier (intrapersonal effect), more capable of establishing and maintaining good interpersonal relationships, more at peace with themselves, and better able to adapt to change and deal with stress. Forgiving also impacts their health positively by, for instance, lowering their stress levels, bringing down their pulse rate, and lowering their cholesterol levels.

Measuring Compassion

The first measure developed to assess compassion was Sprecher and Fehr's Compassionate Love Scale (Sprecher & Fehr, 2005). It consists of 21 items and measures attitudes (towards others) in respect of feelings, thinking, and behavior focused on caring and support for others, including a desire to understand and help others when they are most in need of help. Respondents rate each item on a 7-point Likert scale response format anchored by 0 (not at all true of me) and 7 (very true of me). Other instruments were later also developed to measure compassion. The idea was to design brief scales such as the Santa Clara Brief Compassion Scale (SCBCS) (Hwang, Plante, & Lackey, 2008), which is a shorter version of the Sprecher and Fehr Scale. The SCBCS has only five items, and it, too, uses a 7 point Likert scale response format anchored by 0 (not at all true of me) and 7 (very true of me). The Martins, Nicholas, Shaheen, Jones, and Norris (2013) Compassion Scale (CS) was another new scale. The CS has 10 items and uses the same format as the two scales mentioned above. It measures compassion in terms of the perceived capacity to be moved by the suffering of others and the desire to help alleviate their suffering.

Similarities Between Compassion and Other Constructs

Compassion as a construct is closely related to "empathy" (from empathize: associate or identify with the pain of someone else; feel for someone; the indirect or secondary experience of another person's suffering). However, compassion implies active response to another's

suffering; action or the desire to take action to lessen or ease the suffering of another person. Empathy, on the other hand, implies strong feelings marked by the ability to put yourself in another person's situation emotionally, cognitively, or experientially: "I hear what you say"; "I understand what you are going through"; "I can see why his behavior upsets you so much." Empathy thus denotes emotional, cognitive, or experiential action only; a physically passive state characterized by inaction. Compassion is also closely related to "sympathy" (from sympathize: to be in sync with, responsive to, sensitive or sympathetic to or in harmony with another person; to be conscious or aware of the suffering of others: "Please accept my condolences on the passing of your father"; feeling how another person feels: "I feel sympathy (sorry) for you/your loss because I also lost my child two years ago"). Compassion often kindles empathy and sympathy and enables the compassionate person to look away from his or her own pain and focus on the pain of others. In other words, it is a form of self-healing or self-therapy. The importance of also displaying compassion towards oneself and one's own suffering as an aspect of compassion is, however, often overlooked (Maree, 2016, 2017).

Explaining Compassion

Like other traits, compassion can, to some degree, be inherited. If children, for example, are raised in an environment where compassion is nurtured and valued, they themselves may more easily become compassionate. Compassion is a quality that is valued in all major religions. Experiencing genuine attachment to primary caregivers (e.g. parents), or being raised in a religious atmosphere that values compassion, is conducive to the development of compassion. Likewise, transformative experiences such as attending religious gatherings, going to church, participating in religious rituals, or experiencing pain or suffering may promote feelings of attachment to others (Lopez, 2015).

Children may acquire compassion through social learning (i.e. growing up in a context where compassion is valued and displayed by members of the community) (Lopez, 2015). Compassion may also develop at a subconscious level as a result of early life experiences (any psychologist who has elicited clients' earliest recollections will confirm this). Compassion as seen from a psycho-dynamic perspective is associated with the attainment of a life-long theme that characterizes a person's conscious and subconscious actions and that fosters a deep desire to actively master the suffering that she or he suffered early in life (Maree, 2014, 2016, 2018, 2019).

Personality Correlates of Compassion

Among personality traits, compassion is associated with agreeableness. It relates to the perception of being kind, sympathetic, cooperative and warm, and reflects individual differences in co-operation and cordiality. Individuals who are less agreeable are usually less interested in others' well-being and have less empathy. They are less willing to help others and show less compassion because they are skeptical about the problems experienced by and the motivations of others. They are more suspicious and unfriendly, and they prefer to compete rather than collaborate with others.

Compassion is also associated with a prosocial personality, which can be defined as a permanent tendency to consider the welfare of others, to display empathy towards others, and to behave in a manner that is beneficial to others. Compassion is thus associated with prosocial behaviors aimed at benefiting others and society as a whole. This includes helping, sharing, and co-operating.

Likewise, compassion is linked to individual characteristics such as emotional–social intelligence, which, it is generally agreed, predicts success in life more accurately than aptitude or IQ tests. Many virtues associated with emotional–social intelligence (e.g. empathy, a caring attitude, being attuned to other people's emotions, having a sense of social responsibility and sympathy) are also strongly linked to compassion (Maree, Elias, & Bar-On, 2009). Similarly, compassion is linked to social responsibility. Compassionate people are generally eager to find practical ways to help the disadvantaged, that is, to make social contributions. This may manifest in involvement in their communities, in facilitating social justice, and in uplifting individuals or groups whose existence and well-being depend on the goodwill of others (Maree, 2014).

Mother Teresa of Calcutta, now Saint Teresa of Calcutta, who received the Nobel Peace Prize for her work with the dying and the destitute, epitomizes the deepest kind of compassion. She continues to inspire many millions of people around the world to show compassion to others.

Enhancing Compassion

Specific training has been designed and developed to enhance compassion, including strategies to enhance the awareness of present-moment experiences and to promote curiosity and openness to inner experiences. This training has increased mindfulness and happiness, decreased worry and emotional suppression, and enhanced altruistic behavior. The increased altruistic behavior after compassion training has been linked to changed activation in regions of the brain associated with social cognition and emotion regulation, such as the inferior parietal cortex and the dorsolateral prefrontal cortex. These results provide evidence that compassion is associated with the neural system and its involvement in understanding the suffering of others (Weng, et al., 2013).

See Also

Empathy, Personality Correlates
Emotional Intelligence
Forgiveness
Mindfulness
Religiosity
Social Intelligence

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Compulsive Personality

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Compulsions are repetitive behaviors (e.g. washing, checking) and/or mental acts (e.g. counting, reviewing) that an individual performs in response to obsessive thoughts or rigid rules (American Psychiatric Association [APA], 2013). Compulsions, which are closely linked with obsessions, are typically engaged in with the aim of reducing feelings of anxiety associated with obsessive thoughts (e.g. washing hands to reduce anxiety associated with thoughts of contamination). Compulsions are often unrelated to the obsessive thoughts (e.g. arranging items in order to protect a loved one) or are done in excess (e.g. washing hands for hours each day).

Obsessive–compulsive (OC) symptoms have a strong genetic influence; however, little is known about the specific genes involved. Individuals with OC symptoms are typically influenced by multiple genes, which combine to produce an additive effect, rather than one specific gene holding responsibility (Taylor, 2011). OC symptoms are often associated with the onset of a stressful life event such as becoming a new parent, having a stressful job, or being exposed to a traumatic event. There are several key brain structures that are implicated in OC symptoms; for example, individuals with OC symptoms often display hyperactivity in the orbitofrontal cortex and caudate. Other affected areas include the anterior cingulate cortex, thalamus, amygdala, and parietal cortex.

Types of Compulsions

There are a number of types of compulsions, including acts related to the need to satisfy general, social, or physical compulsions. The most common types of compulsions include:

- *Washing/cleaning*: Related to fears of an individual contaminating either themselves or others. When this occurs, the individual will engage in hand or body washing rituals repeatedly throughout the day.

- *Checking/rechecking:* Related to excessive doubt and worrying over safety. Individuals will spend many hours each day checking items such as locks, switches, and appliances.
- *Ordering/rearranging:* Often in response to symmetry obsessions. Individuals will feel a strong need for uniformity leading to the ordering and arranging of various objects.
- *Counting:* Individuals may consider a particular number of significance and then engage in compulsive behaviors to the number of times that is significant (e.g. counting steps, items, mental counting). This behavior is often related to obsessive thoughts (e.g. counting to four to prevent harm to a loved one) but can also be done for no reason.

Social compulsions include:

- *Gambling*: Difficulty with impulse control resulting in an inability to resist the urge to gamble. Typically a chronic compulsion, although the patterns of gambling may occur during distinct episodes. Individuals will spend hours gambling, planning future gambling, and reliving past gambling experiences.
- *Shopping:* Excessive buying of items that results in financial and personal distress. Individuals will experience intrusive urges to buy as a way to neutralize feelings of increasing anxiety. Has been found to be highly associated with compulsive hoarding.
- *Hoarding*: The inability to discard belongings that appear to hold limited value. Often results in cluttered living spaces that make normal activities difficult and causes significant distress or impairment in functioning. Individuals hold on to objects for instrumental (e.g. potential utility) and sentimental reasons that are above and beyond what would be considered reasonable.

Physical compulsions include:

- *Trichotillomania:* Also known as *hair-pulling disorder* is characterized by persistent pulling out of one's own hair resulting in hair loss. Hair-pulling sites may vary over time but can occur at any place on the body. The most common sites include the scalp, eyebrows, and eyelids (APA, 2013). Hair pulling may be ongoing for an individual throughout the day or may occur during specific episodes that can last for hours at a time.
- *Sexual behaviors*: Includes compulsive masturbation, engaging in multiple sexual relationships, viewing online pornography, or participating in online chat rooms. Individuals spend hours each day fantasizing about, resisting the urge to, and/or engaging in these sexual behaviors.

Abnormal versus Normal Compulsions

Ritualistic and compulsive behaviors are a common phenomenon among healthy, normal individuals and center around the need for routine and consistency. Both healthy and clinical individuals may engage in compulsive behaviors such as checking, washing/cleaning, ordering, and avoiding particular objects. However, there is a clear distinction between abnormal and normal compulsions. Despite the similarities in content, abnormal compulsions are elicited with more frequency, intensity, and discomfort than behaviors that are considered normal. Abnormal compulsions are also more distressing and produce more negative thoughts for an individual than normal compulsions.

Compulsion and Addiction

Addiction is a disorder of the brain's reward pathways in which an individual becomes dependent on rewarding stimuli. Examples include drug or alcohol addictions, but can also be expanded to include behavioral addictions such as exercise, food, gambling, or sexual addictions. A main feature of addictions is the compulsive nature of the behavior. Individuals with addictions struggle to resist the urge to use, obtain, or engage in their rewarding stimuli. As such, it is not surprising that both individuals with addiction and individuals with compulsive behavior have difficulty with inhibition and discontinuing the harmful behaviors. While both addictions and compulsions can offer relief from stress or anxiety, addictions are typically not accompanied by the same types of obsessive thoughts as compulsions and are done for the pleasant sensations that they evoke rather than to relieve anxiety.

Impact on Individuals

Compulsions are often time-consuming (e.g. more than one hour per day) and cause significant distress or impairment to an individual's daily functioning. The impact that compulsions have on an individual may vary in terms of the degree of insight they have about the accuracy of their underlying belief. Individuals with compulsive symptoms may have *good or fair insight*, *poor insight,* or *absent insight/delusional beliefs.* Many individuals will avoid places, people, or items that could trigger obsessive thoughts or compulsive behaviors. For example, an individual may avoid using any public restrooms for fear of contamination.

Compulsions that have a childhood onset may be more or less present over the course of development and although they tend to be chronic, some children may experience remission by early adulthood. On the other hand, compulsions that have onset in adulthood tend to be more persistent and are more likely to continue into late adulthood. Compulsions also typically reflect an individual's developmental level. As such, the types of compulsions will differ slightly among children, adolescents, and adults. For example, children are less likely than adolescents or adults to display sexual behavior compulsions but will be more likely to display washing, counting, or ordering compulsions in response to anxiety about bad things happening to their parents.

Connection to Psychological Disorders

There are a number of disorders that incorporate compulsive behaviors into their diagnostic criteria, as identified by the *Diagnostic and Statistical Manual of Mental Disorders, 5th edition* (DSM-V; APA, 2013). The primary disorders that incorporate these behaviors include Obsessive-Compulsive Disorder (OCD), Autism Spectrum Disorder (ASD), Prader–Willi syndrome (PWS), Tourette's syndrome (TS), and schizophrenia.

OCD is characterized by the presence of obsessions and/or compulsions. Obsessions are repetitive and persistent thoughts, images, or urges that result in pronounced anxiety or distress (e.g. fears of contamination, excessive doubt) whereas compulsions are the actions

taken to lessen the anxiety/distress associated with the obsessions (e.g. handwashing, checking, counting).

ASD is characterized by impairment in social interaction and communication and restrictive patterns of behaviors and/or interests. Compulsions are common among individuals with ASD, and the repetitive routines and rituals that are seen in OCD are also frequent in ASD. For example, individuals with ASD will often need to follow an exact route to school each day or have family members sit in the same chairs during meals. Many individuals with ASD exhibit compulsions that are identical to those expressed by individuals with OCD.

PWS is a genetic disorder in which the deletion of the 15q11–13 chromosome results in a drive to overeat, a short stature, and hypogonadism (i.e. decreased functional activity of the gonads). Individuals with PWS often exhibit ritualistic and compulsive behaviors similar to that seen in OCD. The most commonly reported compulsions for individuals with PWS are excessive or ritualistic washing, repeating, checking, and hoarding.

TS is a neurodevelopmental disorder characterized by motor and vocal tics. Tics are often brief and repetitive movements or phonations (i.e. vocal sounds). High co-morbidity rates of up to 50% exist between TS and OCD (Swain, Scahill, Lombroso, King, & Leckman, 2007). The repetitive behaviors exhibited by individuals with TS are either without distress and in response to a strong urge or with distress and performed as a way to reduce anxiety. The most common repetitive behaviors exhibited by individuals with TS are touching, counting, symmetry rituals, checking, and washing.

Schizophrenia is a neuropsychiatric disorder characterized by disruptions in cognition, perception, and social relatedness. Individuals with schizophrenia may have positive symptoms (e.g. hallucinations, delusions, disorganized speech and behavior) and/or negative symptoms (e.g. affective flattening, avolition, anhedonia, social withdrawal). More than one third of individuals with schizophrenia display obsessive and compulsive symptoms and around 10–20% meet full criteria for OCD. The presence of obsessions and compulsions (OC) may represent a distinct subtype of schizophrenia. OC symptoms in schizophrenia are associated with poorer outcomes such as lower psychosocial functioning, increased deficits in executive functioning, and higher levels of negative symptoms (Lysaker, Bryson, Marks, Greig, & Bell, 2002).

Measuring Compulsions

The measurement of compulsion symptoms is not typically done in isolation but rather is completed within an assessment conducted for OCD. There are four commonly used methods to assessing OC symptoms including diagnostic interviews, clinician-administered inventories, self-report measures, and parent-report measures. The most commonly used clinician-rated inventory is the Yale-Brown Obsessive-Compulsive Scale (Y-BOCS), while the most commonly used self-report measures are the Vancouver Obsessional Compulsive Inventory-Revised (VOCI-R) and the Obsessive Compulsive Inventory-Revised (OCI-R).

Treatments

Generally speaking, there are three types of treatment for compulsions: psychotherapy, pharmacotherapy, and brain modulation. Psychotherapy, in particular exposure and response prevention (ERP), is recommended as the first-line treatment option for reducing compulsive symptoms (Van Balkom et al., 1994). ERP consists of repeated and prolonged exposure to fear-eliciting stimuli or situation (e.g. walking into a public bathroom). During ERP, therapists instruct the patient to refrain from engaging in the compulsive behavior as a way to reduce their anxiety. For example, if the patient has a fear related to contamination, the therapist may ask the patient to refrain from washing their hands after touching a toilet seat. The purpose is to allow the patient to experience anxiety reduction naturally without engaging in behaviors to avoid it. 60–85% of patients report reduction of their symptoms through the use of ERP, with maintenance of results for up to five years after discontinuation of the treatment. ERP and behavioral therapies work best for overt compulsive behaviors (e.g. hand washing) but are more difficult for more covert types of compulsive behaviors (e.g. mental counting) (Rachman, 1997).

Pharmacotherapy or medication intervention includes the use of selective serotonin reuptake inhibitors (SSRIs) or tricyclic antidepressants such as clomipramine. Pharmacotherapy often works best when used in combination with psychotherapy, especially for individuals who may be too frightened by the exposure therapy. In this case, pharmacotherapy should first be started in order to reduce symptoms and then therapists may begin with the ERP.

Brain modulation, or deep brain stimulation (DBS), is considered in patients who suffer with severe OCD that has not responded to an adequate number or sessions of psychotherapy or pharmacotherapy. DBS is a procedure in which high-frequency electrical impulses are sent to specific parts of the brain to break the cycle of the compulsive behavioral patterns. The research on DBS is promising; however, it is currently still considered an experimental approach.

Overall, although many therapies show reduction of compulsive symptoms, it is challenging to completely cure compulsions. After completing ERP, patients' symptoms often demonstrate significant improvement; however, these individuals still reported higher levels of compulsive symptoms than the general population, suggesting that symptoms did not completely resolve (Abramowitz, 1998).

See Also

Anxiety
Neuroticism
Obsessive-Compulsive Personality Disorder
Obsessive Personality

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Coping

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People's responses to stressful situations continue to be studied extensively in the psychological literature. There is a long history connected to understanding how people "cope" with negative events, which begins in the late nineteenth century with Freud's early psychoanalytic concept of "defence mechanisms" (Parker & Endler, 1996). The study of the implications of various defenses became a major research area for much of the twentieth century. Beginning in the 1960s, however, researchers began to identify some adaptive responses toward stressful and harmful situations as "coping" behaviors. Since that time, researchers have continued to study the various aspects of coping and how it can be assessed, as well as how coping predicts a variety of life-success and wellness outcomes.

The origins of the concept of coping were in the late nineteenth century, among the works of Freud and his early writings on psychoanalysis. Freud observed that it is possible for traumatic thoughts to exist exclusively in the unconscious (Freud, 1955). In order to defend themselves, Freud suggested that individuals used various strategies meant to repress, change, or keep away harmful thoughts. Over the course of his writings he identified and described a number of "defense mechanisms": regression, repression, reversal, sublimation, introjection, projection, reaction formation, solation undoing, and turning against the self. Though repression and defense had previously been viewed as equivalent terms, Freud eventually characterized defense as the method that the ego uses in order to defend against harmful thoughts and feelings. Repression was subsequently defined by Freud as just one of several types of defense mechanisms.

Anna Freud also contributed substantially to the development of the modern concept of coping. In Anna Freud's work, "The Ego and the Mechanisms of Defense" (Freud, 1946), not only did she consolidate her father's various ideas about defense mechanisms, but she also described and defined several new defenses: identification with the aggressor, ego restriction, denial in fantasy, intellectualization, and altruistic surrender. In addition to cataloging core defense mechanisms, Anna Freud also promoted the idea that each individual has a set of preferred defenses – a precursor to the idea of "defense styles." She also

promoted the idea that certain defense mechanisms have the potential to be less pathological than others. This position led others to introduce models of adaptive versus non-adaptive defenses, as well as models that suggested that defenses can be organized in a hierarchy according to their levels of psychopathology and/or wellness.

Three main approaches were developed to assess defense mechanisms: observer-reports, self-report, and projective techniques (Parker & Endler, 1996). One of the first observer-rated assessments to identify defense mechanisms consisted of 20 definitions for ego mechanisms: 10 definitions for defense mechanisms and 10 definitions for coping mechanisms (Haan, 1963). This assessment strategy quickly led to the development of various other assessment tools. Of particular note is the work conducted by Vaillant (1971). His assessment technique for defense mechanisms was unique in that it sought to assess how people reacted in different stressful situations. Vaillant's general findings were consistent with a hierarchical defense model, as he found evidence that mature defenses were typical of positive adult adjustment, while immature defenses indicated poor adjustment (Vaillant, 1977).

Beginning in the 1960s, there were also considerable efforts made to develop self-report measures for various defense mechanism constructs. Haan (1965) created one of the first self-report measures by adapting items from the *Minnesota Multiphasic Personality Inventory* and the *California Personality Inventory* to create nine coping mechanism scales and seven defense mechanism scales. Another influential self-report measure in the literature (Parker & Endler, 1996) was the *Defense Style Questionnaire* (*DSQ*), developed initially to assess four distinct dimensions: immature defenses, adaptive defenses, image-distorting defenses, and self-sacrificing defenses. This assessment tool was later modified to assess a three-dimensional model widely adopted in the literature: mature defense, neurotic defense, and immature defense.

In the 1960s, the concept of coping evolved in the psychological literature from being used casually to becoming a technical term for adaptive defense mechanisms. By the early 1970s, the concept of coping had begun to be differentiated from defense mechanisms. Coping became identified with behaviors characterized as flexible, with purpose, and realistic. Eventually, coping responses evolved into an independent area of research that focused on conscious behaviors for dealing with upsetting and stressful situations. The first cohort of "coping" researchers distinguished emotion-focused coping and problem-focused coping as two important types of responses, and these two broad strategies continue to be relevant to the present day. Emotion-focused coping involves methods such as fantasy and other forms of self-involvement that relate to the regulation of one's emotions. In comparison, problem-focused coping involves resolving or reducing the effects of a stressful situation. Another dimension of coping research that was identified early on, avoidance-oriented coping, also continues to be one of the key coping dimensions in contemporary research. This type of coping encourages individuals to distract themselves from stressful situations in various ways.

It should be noted that in the early coping area researchers focused exclusively on the study of reactions to life-threatening and traumatic situations. This early trend from the late 1960s was very influential in shaping influential conceptual models for the coping construct. Although later generations of coping researchers would eventually come to study a broad range of situations, the initial trend of studying traumatic-like situations had the effect of limiting interest in dispositional or stable trait-like coping constructs

(Parker & Endler, 1996). Of course the history of the coping area at this time also mirrors events going on in personality psychology in general from the 1960s to the 1980s, where the trait approach was seriously challenged by situationism.

As with developments in other areas of psychology, interest in traits became widespread once again in the coping area in the late 1980s. More specifically, coping researchers began to explicitly acknowledge a distinction between an "interindividual" and "intraindividual" approach to coping (Folkman & Lazarus, 1985). The intraindividual approach seeks to identify basic coping strategies used by people in specific stressful situations. The interindividual approach, on the other hand, attempts to identify habitual coping strategies used by people across different types of stressful situations.

Similar to the research with defense mechanisms, coping researchers have developed a variety of ways in which to assess coping behaviors (Parker & Endler, 1996). Coping measures can be categorized based on tools developed following "interindividual" or "intraindividual" approaches. For the latter, a number of situation-specific tools have been developed, in which coping behaviors in specific stressful situations are assessed. Stressful situations such as illness and other health-related factors have often been used to develop these measures. As a result, the relationship between coping and health has been a popular area of research. One model, which is used most often in coping and health research, suggests that coping behaviors directly affect physical health; other models suggest that coping strategies influence aspects of one's health indirectly through behaviors such as regularly seeing health care professionals.

The *Ways of Coping Checklist* (*WCC*; Folkman & Lazarus, 1980) later revised as the *Ways of Coping Questionnaire* (*WCQ*; Folkman & Lazarus, 1988) has had the most influence of intraindividual coping measures in the area. Not only has this tool been used in many studies, but it has also become a key validating variable in the development of other coping measures. The original *WCC* was a self-report measure with 68 yes/no questions designed to assess problem-focused coping and emotion-focused coping. Folkman and Lazarus (1988) subsequently modified the scale (renaming it as the *WCQ*) to have 66 items rated on 4-point Likert scales. Although the measure continues to be widely used in the field, a number of psychometric short-comings have never been resolved. For example, many researchers have had problems replicating the factor structure for the tool, and it remains unclear how reliable the coping scales are over different time-frames (Parker & Endler, 1996).

In contrast to assessment tools like the *WCQ*, interindividual coping measures continue to be more controversial in the coping community (Parker & Endler, 1996). Many researchers argue that predispositions are not indicative of how individuals react in stressful situations; however, beginning in the late 1980s, some researchers began to look for evidence of coping styles. One of the earliest of these assessment tools was the *COPE Inventory* developed by Carver, Scheier, and Weintraub (1989). This self-report measure has five scales that measure different aspects of problem-focused coping (active coping, planning, suppression of competing activities, restraint coping, and seeking of instrumental social support) and five scales that measure different aspects of emotion-focused coping (seeking of emotional social support, positive reinterpretation, acceptance, denial, and turning to religion). The *COPE* also has three other scales that measure different non-adaptive coping strategies (venting of emotions, behavioral disengagement, and mental disengagement). The *COPE* remains the most widely used measure in the coping area.

The concept of coping has a long history in which it evolved from Freud's theory of defense mechanisms to become a conceptually distinct research area. Although the coping and defense mechanism literature utilizes similar measurement strategies (e.g. self-report tools) and sought to predict similar life-success and wellness outcome variables, the two areas have grown into two very independent fields. Within the coping area of the last three decades, two broad trends can be identified: the distinction between interindividual and intraindividual conceptual models, with their concomitant sets of assessment tools, as well as the focus on two broad coping strategies that transcend the two conceptual approaches – problem-focused coping and emotion-focused coping.

See Also

Adaptability
Defense Mechanism
Individual Differences in Coping with Stress

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Core Self-Evaluation

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Definition of Core Self-Evaluation

Core self-evaluation can be defined as positive self-concept in terms of self-esteem, general self-efficacy, absence of pessimism, locus of control (Judge, Erez, Bono, & Thoresen, 2003; Judge, Locke, & Durham, 1997). In particular it is a higher order construct that includes these four specific constructs. Self-esteem is considered the overall value that the person ascribes to herself/himself; general self-efficacy is relative to the perceived evaluation of one's own capacity to adequately perform in different settings; absence of pessimism is defined as the tendency to have a positive explanatory style and to consider one's own resources; locus of control refers specifically to intern locus of control that is the attribution of causality of events to the person and not to external causes. Core self-evaluation was initially developed to find individual characteristics that can explain job performance in organizations (Judge et al., 1997). The four constructs that composed the higher order construct of core self-evaluation were chosen on the basis of the following three criteria: evaluation-focus, fundamentality, scope. Specifically, evaluation-focus criterion refers to the evaluation of individual characteristics rather than a simple description; fundamentality refers to characteristics that are more central to one's self-concept; scope refers to how broad or specific the characteristic is. The four constructs included in the core self-evaluation construct represents in fact evaluations of broad individual characteristics, referring to aspects that are more fundamental for individual and more central to one's self-concept.

Measurement of Core Self-Evaluation

Regarding the measure of the core self-evaluation construct, Judge et al. (2003) have first developed a set of 65 items based on the literature on measures of the four components (self-esteem, example of item "Overall, I am satisfied with myself"; general self-efficacy, example of item, "I complete tasks successfully"; absence of pessimism, example of item

"I am capable of coping with most of my problems"; locus of control example of item, "I determine what will happen in my life") of the core self-evaluation construct. From this initial group of items, they have identified 12 items corresponding to the four components. Among these items, six were formulated in a positive manner and six in a negative manner. These 12 items constitute the Core Self-Evaluation Scale (CSES) whose answer modality is on a 5-point Likert scale (1 = *strongly disagree* to 5 = *strongly agree*). The authors found high levels of internal consistency and good reliability. Confirmatory factor analysis confirmed that the items of CSES are indicators of a single latent high order construct.

The Core Self-Evaluation Scale was adapted and validated in different international contexts such as Italian, German, and Iranian contexts.

Similarity and Differences of Core Self-Evaluation to Other Constructs

The discriminant validity of core self-evaluation was studied in relation to other similar constructs to analyze if the core self-evaluation presents some similarities with the other constructs or if it represents a distinct construct. The core self-evaluation was studied in particular in comparison with the Five-Factor model. Core self-evaluation explains a percentage of incremental variance over personality traits in relation to job satisfaction, job performance, life satisfaction (Judge et al., 2003). These results show that core self-evaluation and personality traits are different constructs. Some authors argued that the neuroticism of the Big Five model can overlap with core self-evaluation. If it can be true that the definition of neuroticism of the Big Five model includes some aspects relative to the presence of pessimism as a tendency to have a negativistic explanatory style, neuroticism does not refer to self-esteem, self-efficacy, and locus of control. Moreover, Big Five traits are relative to descriptive characteristics of individuals whereas core self-evaluation includes an evaluative component. The core self-evaluation was also studied in comparison with positive/negative affectivity, showing that core self-evaluation is linked to job and life satisfaction (Heller, Judge, & Watson, 2002). These results also showed that core self-evaluation and positive/negative affectivity are different constructs, highlighting that the affective component is not part of the core self-evaluation construct (Heller et al., 2002).

Explanations of Core Self-Evaluation and Important Outcomes

The research regarding explanation of core self-evaluation is not particularly widespread. However, an interesting perspective concerns a genetic explanation of core self-evaluation (Judge, Ilies, & Zhang, 2012). The heritability of core self-evaluation is shown in the studies on twins. Several studies have also supported the genetic basis of some of the individual core characteristics, such as absence of pessimism and self-esteem. Furthermore it is possible to distinguish different processes that shape how core self-evaluation characteristics are manifested. Generalized self-efficacy and locus of control are respectively cognitive appraisals about oneself and the environment. These appraisals are influenced by successful and unsuccessful prior attempts at exercising control over one's behavior and context.

Self-esteem regards fundamental beliefs about one's self, shaped by self-worth and other self-relevant information, also at symbolic levels. At a physiological level, these evaluation processes are located at the level of cerebral cortex and they have a strong cognitive component. Instead absence of pessimism is more characterized by an emotional component. In particular, absence of pessimism is associated with a lack of avoidance-oriented motivation and negative affect along an anxious-calm continuum. Avoidance motivation and its corresponding negative affect are processed in primitive physiological and emotion-based cognitive architectures of the amygdala and limbic system. Core self-evaluation characteristics therefore differ in the types of information processing and neural systems that regard them.

If research of explanation of core self-evaluation was limited, the studies on core self-evaluation were mainly relative to its outcomes. The construct of core self-evaluation was traditionally studied above all in the organizational field particularly in relation to job satisfaction and job performance. Positive relations consistently emerged between core self-evaluation and job satisfaction. Research showed the relations between core self-evaluation and job satisfaction, underlining the fact that workers who evaluate themselves in a more positive way seem more satisfied with their job. Core self-evaluation is traditionally associated also with job performance, suggesting that workers with a higher core self-evaluation are more confident to be able to perform well and for this reason they are more motivated in their work, performing well.

In organizational contexts, core self-evaluation was studied in relation to other variables such as job stress, job burnout, economic success. Regarding the relation between core self-evaluation and job stress, workers who evaluate themselves in a positive way seem more able to face stressful situations in the workplace, perceiving less job stress. Concerning the relation between core self-evaluation and job burnout, individuals with high core self-evaluation seem to perceive themselves as more able to manage difficult situations in the workplace, experiencing less job burnout. With regard to economic success, core self-evaluation was longitudinally studied in relation to income level when participants are young adults and then in their mid-life, showing that core self-evaluation has a positive relation with income level over time. More recently research also shows that core self-evaluation was positively associated with more positive judgment of team effectiveness that contributes to increase performance management team behavior. High core self-evaluation of both followers and leaders is related more to followers' role clarity that increases leader-member interactions. Furthermore, high core self-evaluation enhances team social interactions that consequently improves team effectiveness.

Further variables associated with core self-evaluation are life satisfaction and psychological distress. Individuals with high core self-evaluation perceive a greater general satisfaction with their lives and lower psychological distress. High core self-evaluation is also associated with low emotional exhaustion and low cynicism that are both associated with job satisfaction.

Recently in the vocational field there is an increasing interest in the core self-evaluation construct. Core self-evaluation is positively associated with vocational identity in terms of commitment and exploration of individual identity as a worker that is in turn associated with life satisfaction. Furthermore, research underlines the contribution of core self-evaluation in decision-making processes, showing relations between core self-evaluation and decisional variables such as career decision-making difficulties, decisional styles and indecisiveness.

Particularly core self-evaluation was related to different kind of career decision-making difficulties such as lack of readiness, lack of information, and inconsistent information. Core self-evaluation showed correlations with adaptive decisional style vigilance and with inadequate decisional styles, particularly with hyper-vigilance. Furthermore among decisional aspects, core self-evaluation is especially related to indecisiveness.

core self-evaluation constitutes a promising variable since it is associated with many different outcomes relative to the organizational field, the well-being of individuals, and more recently to vocational fields.

Dealing with Core Self-Evaluation

Since core self-evaluation results are associated with many different outcomes, it is important to enhance core self-evaluation with specific training. This training to enhance core self-evaluation is focused on the increase of four specific constructs (self-esteem, self-efficacy, absence of pessimism, locus of control) that are included in this higher order construct. Training to enhance self-esteem is focused on identifying successful experience in one's own life, producing positive affirmation on oneself, and use self-appreciation techniques. Training to enhance self-efficacy are centered on identifying positive results in one's own life, clarifying the sequence of actions useful to reach such positive results; identifying one's own strengths; clearly identifying one's own objective and focusing on the possibility to achieve these objectives; engaging with perseverance and constancy in new, stimulating, diversified, and tasks increasing in difficulty. Training regarding absence of pessimism refers to counteracting negative thoughts turning them into positive affirmations; monitoring one's own internal dialogue, noting the thoughts that arise when facing difficulties; remembering to not think negatively when faced with adversities to prevent negative thoughts; facing with negative thoughts and bringing evidence in support of such thoughts and evidence to refute these thoughts and implement subsequent reflection. Training to increase internal locus of control is relative to exercises focused on the fact that there is always a way for individuals to personally change negative situations; on the opportunity to individuate possible actions when there seems to be no possibility of choice; on the strengthening of problem-solving of individuals.

Particularly in the guidance and career counseling field, it has recently emerged that dialogue interventions such as "Constructing my future Purposeful Life" (Di Fabio, 2014) increase core self-evaluation in terms of development of greater positive self-concept after the dialogue intervention in relation to the process of reflexivity and of greater awareness of one's own identity.

See Also

Self-construal
Self-efficacy
Self-esteem, Expressions of
Locus of Control
Optimism/Positivism vs Pessimism/Negativism

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Creativity

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The Conceptualization of Creativity

Creativity is an intriguing and complex construct that has been studied for centuries because of its undeniable importance for humankind's progress. There are multiple conceptualizations of creativity, but the most accepted one defines the construct as the way of thinking that results in products that have both novelty and utility (i.e. are valuable and effective). Despite its recognized value, this *new and useful* conceptualization of creativity is limited to the creativity output and might be unable to discriminate among creative products. Creativity definitions have traditionally been grouped into four areas of research: the creative *person*, the creative *process*, the *environmental* conditions in which creativity occurs, and the *product* resulting from creative activity. Integrative definitions of creativity recognize the multifaceted nature of the construct and the interaction among the above-mentioned areas.

Even though tremendous efforts have been made in proposing integrative models, there is still need for a solid framework to incorporate the vast and diverse research evidence. The disparity of findings is partly due to the multiple approaches and measures used to assess creativity (e.g. divergent thinking [DT] tests, personality inventories, creative behavior checklists, external evaluations, etc.) which has compromised the comparability of research findings. Some promising attempts to simultaneously assess the multiple creativity components (e.g. cognition, emotion, and motivation) have been recently proposed. New heuristic frameworks have suggested three dimensions to classify creativity measures, namely the *level* or unit of analysis (e.g. the individual or the team), the *facet* or what is being assessed (person, process, environment, or product), and the *measurement approach* (e.g. objective or self-report; Batey, 2012).

Individual Differences in Creativity

Research on the creative *person* has tried to differentiate between a creative individual and a non-creative one for decades. Three main factors have been identified to contribute to creativity, namely environmental/demographic variables, cognitive abilities and personality traits. There are contradictory findings on the role of gender in creativity; however, evidence shows that females outperform males on verbal measures and the opposite is true for figural/numerical measures of creativity. Creativity peaks during middle adulthood and declines as individuals grow older. Also, high levels of education and socio-economic status are often linked to higher creativity. The bulk of research has focused on the other two areas; cognitive abilities (mainly intelligence) and personality traits. Affective traits and states have also been shown to influence creativity.

Creativity and Intelligence

The study of individual differences in creativity originated in early research on intelligence. In fact, creativity was initially considered a subset of intelligence, linked to fluid intelligence (Gf). However, traditional intelligence tests could not comprehensively measure creativity, despite some of them considering fluency as a component of intelligence. The first DT tests assessed fluency, flexibility, and originality. Since then, they have been widely used to assess creativity, even though they are not exempt from criticisms (e.g. lack of predictive validity). Studies exploring creativity (mainly using DT tests) and intelligence (mainly using IQ tests) have generally shown moderate to weak associations between the two, thus supporting the idea that they are independent constructs.

The well-established threshold theory assumes a cut-off in IQ (i.e. 120 points) beyond which creativity is no longer related to intelligence. However, studies differ in their reported thresholds and direction of relation, which might depend on the operationalization of creativity and the sample used. In addition, some cognitive abilities seem to relate to creativity differentially across domains. For example, while verbal ability might be more relevant for individuals in specific art disciplines, problem-solving skills are more prominent in the sciences field.

Research suggests that intelligence contributes to creative performance but is insufficient for creative achievement. Non-cognitive factors such as personality, affective dispositions, and environment are equally if not more important for creative achievement.

Creativity and Personality

Early meta-analytic data characterized creative individuals as open to experiences, autonomous, unconventional, self-confident, dominant, ambitious, and impulsive. Psychoticism (from the Gigantic 3 model) has been linked to creativity through unusual ideation, over-inclusive thinking, and remote associations. Such links have been supported by considerable clinical, subclinical, and non-clinical evidence from individuals with schizotypy features.

Studies adopting the Five Factor Model of personality report a strong and consistent relation between creativity and openness to experience, which affords a vivid imagination, artistic tendencies, unconventionality, preference for challenges, and curiosity, all of which facilitate creative endeavor. Extraversion has been shown to be relevant for creativity

within particular domains (e.g. business). There seems to be a weak negative relationship between agreeableness and creativity, and the rest of the factors have domain-specific relationships with creativity. For example, conscientiousness and emotional stability support creativity in sciences but hamper it in arts.

Other research contends that creative individuals have *complex personalities*, with traits operating at both ends of the dimension (e.g. imaginative and realistic), which facilitates creativity depending on the situation. Recently, some researchers have argued that approach-related traits (e.g. extraversion and openness to experience) are linked to higher cognitive flexibility and thus relate to divergent thinking styles, while avoidant-related traits (e.g. conscientiousness and neuroticism) facilitate convergent thinking as they are associated with cognitive perseverance.

Recent integrative models on the relationship between personality and creativity, such as the functional model of the creative personality (Feist, 2010), suggest that cognitive-related (e.g. openness to experience), social (e.g. nonconformity), affective-motivational (e.g. intrinsic motivation) and clinical (e.g. psychoticism) traits influence creativity through the interaction of biological and behavioral dispositions. Another multicomponential model is Furst, Ghisletta, and Lubart's (2014), whereby personality factors, namely plasticity (e.g. high openness to experience and extraversion), divergence (e.g. low agreeableness and conscientiousness), and convergence (high ambition and precision), interact to promote creativity and influence the creative *process*. These models are promising but need empirical support and further recognition of environmental factors.

Creativity and Emotions

Research is not as extensive regarding individual differences in the affective parts of the personality realm. There are currently two main streams of research exploring creativity and emotions: affect-related traits or states. Some research studying creativity and emotions as traits has adopted the *trait emotional-intelligence* (*trait EI* or *trait emotional self-efficacy*) model, which covers a wide range of emotion-related dispositions. Certain trait EI dimensions such as sociability are associated with creativity, while emotionality and low self-control were linked to creativity in arts, but neither in sciences nor social sciences.

Another body of research examines the impact of the valence and activation of positive and negative moods on creativity. One of the most relevant contributions in this regard is the dual pathway model (de Dreu, Bass, & Nijstad, 2008), which maintains that both positive and negative moods can facilitate creativity through different routes. While the former promotes optimism in the face of challenge and thus enhances flexibility, the latter optimizes efforts and promotes determination, exploration, which results in increased fluency. The same model argues that positive moods (e.g. happiness) enhance fluency and originality, in contrast to deactivating moods (e.g. sadness) that can lower the motivation to act creatively.

The Creative Brain

Research evidence indicates that creativity studies have explored the neurophysiology and show structural and functional correlates of creativity. Regarding the former, lesion studies show that fronto-temporal damage facilitate artistic creativity (possibly through a disinhibitory impact)

while parietal damage can hinder it. Overall, these studies show that the fronto-lateral portion of the frontal lobe has a significant role in the generation of new and useful ideas.

Increased gray matter thickness in the right posterior cingulate gyrus and right angular gyrus was associated with creative achievement and performance, respectively. Decreased cortical thickness in other areas (e.g. left frontal lobe) also predicted creativity. Moreover, gray matter tissue volume in the right superior parietal lobe was positively associated with DT scores, while white matter pathways facilitated the "efficient integration of information" that is essential for idea generation. In fact, connectivity and increased structural integrity in the frontal lobe and corpus callosum have been correlated with higher creativity scores.

Structural neuroimaging research has suggested that in order to understand the neuro-biological underpinnings of creative cognition, research can investigate the network connections in the brain and the hubs (highly connected and central brain regions) instead of attempting to localize brain areas for specific creative processes.

As for functional imaging studies, electroencephalographic (EEG) data is mixed, but a general trend shows amplitude and synchronization changes in the alpha-band are associated with creative performance. Findings from fMRI studies are also difficult to interpret, but the trend shows activation of the frontal, temporal, and limbic lobes during creative activity (see Arden, Chavez, Grazioplene, & Jung, 2010 for a review).

Neuroscientific findings so far are promising but difficult to integrate, mainly due to the different creativity and neuroimaging measures used across studies. Research is needed using multimodal designs and creative tasks that resemble reality as closely as possible, while attempting to control the effect of the imaging techniques on participants to reach unbiased results.

The Creative Environment

Current studies investigate not only the creative individuals, but also their environment. One important area of study is how cognitive processes, personality attributes, and working/studying approaches that differ across domains (e.g. sciences, arts) influence creativity.

Another area is the creative climate, or perceived situational elements that facilitate creativity, which is generally studied within organizational settings, and refers to dimensions such as support and autonomy. Other factors contributing to the creative climate are work-group support, challenge, and involvement, organizational reinforcers and impediments, autonomy, workload, idea time and support, flexibility and risk-taking (see Hunter, Bedell, & Mumford, 2007 for a review). These elements might interact with personality variables to facilitate creativity, understood in the organizational context as the generation of new ideas, which in turn leads to innovation, the application of such ideas to reach new and useful outcomes. Innovation is ultimately linked to higher productivity and socio-economic growth.

However, more work is needed on the differential predictive value of the creative climate elements, their assessment, and mediation/moderation effect of other variables. For example, studies show that employees' work motivation mediates the relationship between creativity climate and perceived innovation.

Future research on creativity can pioneer approaches that adopt a global view to better understand how nature and nurture interactions affect creativity. There is a need for a

conceptual and assessment framework of creativity. This framework can serve as a tool for needs assessment and monitoring the development of creativity programs aiming at fostering creative thinking among individuals and across diverse domains.

See Also

Big Five
Emotional intelligence
Flow
Genius, Personality Correlates
Intelligence-Personality Association, Assessment of

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Culture and Personality

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Background

During the early twentieth century culture and personality became a focus of study. At this time, culture and personality studies were influenced by both anthropology and sociology and were the precursor to cross-cultural psychology and research on personality. From their inception, culture and personality studies undertook an interdisciplinary approach integrating the fields of anthropology, sociology, and psychology.

Anthropologists Edward Sapir, Margret Mead (i.e. *Coming of Age in Samoa*) and Ruth Benedict (i.e. *Patterns of Culture*) along with sociologists Ernest Burgess and William Thomas were seminal thinkers in the field and initiated discussion on the relationship between personality, society, and culture. It was during the 1930s that the Social Science Research Council (SSRC) established an advisory committee, which has been credited with the establishment of personality and culture, as a distinct field of study. At this time, Sapir was invited to chair the SSRC Hanover Conference in which he argued that a simple application of Jung's early work on personality classification (i.e. rational vs. irrational and introvert vs. extravert) need be understood within the context of cultural (social) norms and that whole cultures could be interpreted within this framework.

Although the field flourished during the 1930s, it declined in popularity after WW II. This was in part because culture and personality studies were characterized by attempts to ascribe national personality characteristics to nation states (i.e. Germany and Japan). However, as these studies were found lacking in empirical validity, the field waned and its popularity declined. It was during this time that the relativist school of thought dominated the field. From the relativist perspective, culture was viewed as the personality of a society. The relativist school of thought believed that individuals living in the same culture are socialized in a similar manner leading to personality traits specific to their culture. It is the primary institutions of the culture that aid in forming the basis of personality through socialization practices, which forms the basic personality structure of a population.

Structural Universalists: Trait Psychology

In contrast, the structural universalist school of thought, also known as trait psychology, contends that specific personality traits are predictable across cultures. Development and use of large-scale personality assessment instruments led to the popularization of the belief that dimensions of personality are consistent across cultures. The study of traits with large-scale personality assessment instrumentation using factor analysis has demonstrated considerable consistency in articulating a five-factor model of personality and in part has led to the revival of culture and personality studies (McCrae, 2000).

Nevertheless, there is disagreement as to how many dimensions encompass the "universal model." Some have proposed a six-factor model that comprises an additional honesty-humility factor, while others who use language as the basis for the exploration of personality traits across cultures have concluded that that only three dimensions (extraversion, agreeableness, and conscientiousness) can be replicated across cultures.

Owing to the overreliance of self-report instruments on the measurement of personality, criticisms were also related to the susceptibility of respondents toward social desirability in their response patterns. Among cross-cultural psychologists, it is argued that there is a preponderance of Western methods in the research undertaken to the understanding of cultural universals. In this respect, methodological issues (i.e. the lack of indigenous constructs) and item biases have also been reported which puts into question the predictive validity of the structural universalist approach.

Nonetheless, there is a growing body of empirical research that makes it difficult if not impossible to ignore the universality of personality traits across cultures. Consequently, there is an emerging consensus among cross-cultural psychologists that dispositional traits, as articulated in the five-factor model, are biologically based and therefore not cultural constructs. Rather, distinctive personality traits are interpreted as selected characteristic adaptations that are unique expressions within a given culture.

Estimates of trait differences across cultures using quantitative analysis to determine between culture variance and between person variance have demonstrated relative stability in interpreting personality traits across cultures when data sets from self-report measures of personality are used. However, the samples are mainly drawn from literate Western societies and this is viewed as a major limitation in interpreting the research findings and ascribing universal patterns to personality across cultures.

Perspectives Among Psychologists

Evolutionary psychologists focus on the relationship between the environment and evolved psychological process. They do not view culture as a mechanism which influences personality; rather human psychological processes in interaction with the environment cause species to adapt, which results in differences (i.e. personality) to exist. Evolutionary psychologists do not believe then that cultural variables are the causal agent in personality development. Instead of an evolutionary perspective it is the adaptation of "psychological mechanisms" (i.e. personality) to the environment that causes cultural differences to evolve.

Indigenous psychologists use a more relativistic approach in the understanding of individual differences. Accordingly, there is a growing body of research among Indigenous psychologists who are attempting to validate personality constructs unique to a particular cultural milieu. Consequently, much of the work undertaken by Indigenous psychologists in the exploration of personality within a culture is ethnographic in nature.

Limitations of such an approach are found in the lack of evidence available that confirms the cultural features that permeate personality constructs of a specific culture that can be described as basic heritable tendencies within a culture. Thus it is argued that there is little support for confirming indigenous constructs as being culturally unique as opposed to culturally relevant expressions of the major personality dimensions as articulated by cross-cultural researchers.

Like Indigenous psychologists, cultural psychologists take a relativistic point of view. Cultural psychologists ascribe to the viewpoint that personality traits are constructed socially and therefore unique to a specific culture. Research by cultural psychologists tends to be conducted in non-Western cultures in an attempt to deemphasize the dispositional trait approach advocated by the structural universalists. In contrast, studies undertaken by cultural psychologists employ a constructivist approach, which articulates cultural influences on personality. The methods used by cultural psychologists are characterized by ethnographic and narrative approaches in an attempt to demonstrate contextual descriptions of cultural meaning to adaptations and their influence on personality in differing environs. Unfortunately, a major limitation of research on personality among cultural psychologists is that it has mainly occurred in a selected few cultural contexts (i.e. Asia and North America).

Emic and Etic Approaches

The various perspectives offered add to the extant research on culture and personality studies. As alluded to, these approaches can be described as occurring along a continuum favoring either a relativist or structural universalist viewpoint. Another way of articulating this distinction, that has more recently come to characterize investigations into culture and personality, is the conceptualization of the research paradigms as being either emic, which refers to culture-specific personality traits, or etic, which are those traits generalized across cultures (Poortinga & Van Hemert, 2001). This way of understanding originally evolved out of culture and language studies undertaken in the 1960s and has been applied to investigations on culture and personality.

The emic approach explores Indigenous psychological phenomena (i.e. personality) and the extent to which it is related to the culture in question. The emphasis is on the singular culture and the cultural context of the psychological processes, the relativist tradition. The etic approach attempts to understand behavior and relationships across cultures so as to delineate universal patterns of behavior (i.e. personality), much like the structural universalist paradigm advocates. Etic inquiries espouse Western research traditions and the utility of Western models and positivistic methods in the study of culture and personality. Consequently, etic studies are mainly concerned with the trait approach to the understanding of culture and personality.

It is not argued that one approach is more favorable than the other when conducting research into culture and personality. Rather, it should be remembered that both have benefits and limitations, and the whole emic–etic distinction is best viewed along a continuum. Instead of dichotomizing the two, a series of theoretical methods has emerged to advance studies on culture and personality (Poortinga & Van Hemert, 2001). This third synthesized approach to bridging research methods involving emics and etics has come to characterize recent culture and personality studies and includes the combined emic–etic approach, the integrated emic–etic approach, and the demarcated emic–etic approach. It is important to note that these methodological procedures are not specific to culture and personality studies in themselves but also include research on constructs in different cultures.

Briefly, the combined emic–etic approach can only happen when researchers agree on the importance of both the emic and etic methods when conducting research into culture and personality. This requires an understanding of the theoretical and methodological issues of both traditions. Personality differences would be described as emic in nature whereas similarities would be characterized as etic. Neither approach would supersede or take precedence over the other, rather by using a combined approach would require that there is agreement among researchers from differing traditions on how to conduct culture and personality research. Nonetheless, this approach holds promise for the understanding of culture-specific representations of personality. Limitations are found in the process of uncovering a comprehensive nomological network of the constructs that can be universally applied.

The integrated emic–etic approach is an emerging field of study in culture and personality research. Although it might be viewed as a superior method, it would require agreement among the dominant research paradigms (i.e. Indigenous and structural universalists). Even though future research might take this direction, the integration of methodological and theoretical perspectives can only occur when there is a preexisting intent on the part the researchers to integrate both traditions and there is agreement that both perspectives can contribute to the research undertaken.

The demarcated emic–etic approach recognizes that the two traditions are incompatible and that any attempt at either the combined approach or integrated approach is not tenable. What this translates into is that some personality traits are best understood as universal (i.e. emic) while others are culturally unique (i.e. etic). The demarcation approach would require agreement among researchers to delineate which consequence on any specific occasion in any cultural context is likely to occur and therefore take precedence over the other (i.e. which traits are specific to a culture). Limitations to this approach are found in assigning predictability to a specific behavioral event either as a culturally general or culturally specific occurrence and articulating with assurance, which would have greater predictive validity over the other.

Future Research

What is important for purposes of understanding future research on culture and personality, whether it be from the major traditions articulated (i.e. relativist or structural universalist), through a synthesized approach to conceptualizing emics and etics as applied to

culture and personality studies or from the perspective of Indigenous, cross-cultural or cultural psychologists, is an understanding of what facet of personality is being discussed. Within this context, the influence of culture on the various aspects of personality might differ depending upon whether one is studying dispositional traits, characteristic adaptations, or life narratives. A clear understanding of what features of personality are universal and therefore common and predictable and those that are unique, unpredictable and culture-specific needs be considered. To achieve this, it is advocated that future research embark on either an integrated or demarcated methodological approach respective of the traditions espoused by Indigenous, cross-cultural, and cultural psychologists in the study of personality and culture so that a clearer picture formulated.

See Also

Genetic Bases of Personality
General Personality Factor
Personality Development

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Dark Triad

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Overview

The Dark Triad refers to three socially aversive traits: psychopathy, narcissism, and Machiavellianism. While psychopathy, narcissism, and Machiavellianism have meaningful factor-specific variance, they also overlap considerably. Specifically, each of the three Dark Triad traits encompasses a tendency to be callous, manipulative, and low in honesty-humility. Traditionally, researchers studied psychopathy and narcissism in clinical populations. However, psychopathy and narcissism have recently been reconceptualized as subclinical traits applicable to the general population.

Subclinical psychopathy refers to the dispositional tendency to be impulsive, thrill-seeking, erratic, and show a consistent lack of anxiety and empathy. Subclinical narcissism refers to the dispositional tendency to seek attention, fantasize of unlimited power, and possess a grandiose sense of entitlement. Finally, Machiavellianism refers to the dispositional tendency to be deceptive, manipulative, and cynical of human nature.

The importance of research pertaining to the Dark Triad is substantiated by the Dark Triad's ability to predict a number of important outcome variables (e.g. preferences for short-term mating strategies, desire for power, academic dishonesty, engagement in risk-taking behaviors, and sensation seeking). However, whether the Dark Triad consists of independent traits or a single unified construct is debated. Those who favor the "unification perspective" contend that due to psychopathy, narcissism, and Machiavellianism's overlap, all three traits fall into the same interpersonal circumplex defined by high agency and low communion. In contrast, those who favor the "uniqueness perspective" contend that a merge of the three traits is not justified due to their distinct patterns of associations with criterion variables.

Two self-report questionnaires commonly used to assess levels of the Dark Triad in the general population are the Dirty Dozen (DD; Jonason & Webster, 2010) and the Short Dark Triad (SD3; Jones & Paulhus, 2014). The two scales evaluate the key components of each of the three Dark Triad traits concisely and efficiently. Although the DD possesses very high

reliability coefficients, its high reliability may be due to item redundancy. Furthermore, the convergent validity of the DD pales in comparison to that of the SD3, particularly when the two scales are correlated with lengthier, established measures of the Dark Triad. Specifically, the DD reflects less of the variance in the established Dark Triad measures than does the SD3. Recently, researchers have proposed that the trait known as subclinical sadism, characterized by the engagement in cruelty for pleasure or subjugation, should be included with a triad to form a "Dark Tetrad" of personality. Promising subclinical sadism measures have been developed including the Assessment of Sadistic Personality (Plouffe, Saklofske, & Smith, 2017), the Short Sadistic Impulse Scale (O'Meara, Davies, & Hammond, 2011), and the Comprehensive Assessment of Sadistic Tendencies (Buckels & Paulhaus, 2014).

Psychopathy

The most recent of the three Dark Triad traits to emerge in subclinical literature is psychopathy, which is characterized by impulsive thrill-seeking, aggression, callousness, erratic behavior, low empathy, and low anxiety. High-psychopathy individuals use charm and manipulation to satisfy their needs. While psychopathy appears to be closely related to Machiavellianism, high scorers on Machiavellianism exhibit tactical interpersonal manipulation, whereas the psychopath acts impulsively and violates social norms without a plan in place.

Most previous literature has examined psychopathy as it emerges in clinical populations such as offenders, inmates, and psychiatric patients. In 1968, the Diagnostic and Statistical Manual of Mental Disorders (DSM-II) described individuals exhibiting high levels of psychopathy as unsocialized, selfish, impulsive, and unable to learn from experience. The gold standard for measuring psychopathy among clinical populations is Hare's (1991) Psychopathy Checklist – Revised (PCL-R). The PCL-R was designed to assess a psychopath's affective deficits and antisocial behavior tendencies. The PCL-R splits psychopathy into two dimensions known as primary and secondary psychopathy. Primary psychopathy reflects the psychopath's heritable affective deficits, including a lack of remorse, high manipulativeness, and high callousness. Primary psychopathy is associated with Machiavellianism and narcissism, as well as low empathy. Secondary psychopathy reflects an environmentally acquired affective disturbance, and is linked to greater instances of antisocial lifestyle choices such as criminality and substance abuse. More recently, a three-factor model of psychopathy has been proposed, such that individuals exhibiting psychopathic tendencies are described as being affectively deficient, impulsive, and deceptive in interpersonal contexts.

In recent years, researchers have contended that if psychopathy is a personality trait, then it should not only emerge among clinical populations, but also among the general population. It has been estimated that individuals exhibiting psychopathic traits make up approximately 1% of the general population and 15–20% of prison populations. In order to assess psychopathy at the subclinical level, the Self-Report Psychopathy Scale (SRP; see Hare, 1985) was developed. The SRP-III (Paulhus, Neumann, & Hare, in press), which is the most recent version of the SRP, evaluates levels of subclinical psychopathy using 64 self-report questions measured on a 5-point Likert scale, where participants rate their level

of agreement on a series of statements. The SRP-III is analogous to the PCL-R, with the main departure being the populations assessed (i.e. the SRP-III measures the general population as opposed to the clinical population). The SRP-III contains four subscales representing separate domains of psychopathy: Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, and Antisocial Behavior. Several studies have indicated that the measure possesses strong reliability coefficients and validity.

Psychopathy is negatively associated with honesty-humility, agreeableness, conscientiousness. Psychopathy is also associated with self-enhancement, operationalized as the discrepancy between self-reported IQ scores and actual IQ scores. Individuals high in psychopathy further demonstrate a propensity to lie and cheat in a multitude of situations, including in academic and mating contexts. Moreover, they derive greater pleasure from lying and cheating relative to high Machiavellianism or high narcissism individuals. It is no surprise then, that psychopathy is seen as the least desirable of the Dark Triad traits, as it offers few benefits to the self or others.

Narcissism

Narcissism is characterized by a grandiose sense of self-importance, dominance, superiority, and entitlement. The tremendous arrogance and fantasies of unlimited power and success are features that set those high in narcissism apart from those high in subclinical psychopathy and narcissism. High scorers on narcissism require excessive admiration and believe that they are special, and as such, insist on associating with only high-status people. These individuals feel entitled and exploit others for personal gain. Narcissists are also envious of others, believe people are envious of them, and will diminish others' success or accomplishments. Like the other Dark Triad traits, individuals high in narcissism demonstrate a lack of empathy for others.

Narcissism first emerged in the early twentieth century and was viewed as part of normal human development. The first narcissism theorists were psychoanalysts who relied on observations of their clinical patients. These observations led to the belief that narcissism was a part of psychosexual development as well as a means of self-preservation. It was not until 1925 that narcissism was viewed as a personality trait. Individuals with this personality type were characterized as being preoccupied with themselves, feeling a sense of superiority, and demonstrating a persistent lack of empathy. By the mid-twentieth century, narcissism emerged as a personality disorder that was diagnosed by observable behavior resulting in the clinical term Narcissistic Personality Disorder (NPD).

It was not until the late 1970s that narcissism was recognized as a subclinical, and not just a clinical trait. The development of the Narcissistic Personality Inventory (NPI; Raskin & Hall, 1979) allowed for measurement of subclinical narcissism. Subclinical narcissism shares similar facets with clinical narcissism such as grandiosity, dominance, superiority, and entitlement, but lacks the vulnerable features, and is considered less extreme. The NPI is a 40-item forced-choice questionnaire that allows participants to choose between two options (e.g. A. I only associate with high-class people, or B. I don't care about a person's social status). High scores on the NPI indicate high levels of narcissism.

Subclinical narcissism is significantly correlated with three of the Big Five personality factors. Specifically, high scorers on clinical narcissism are more extraverted and open to experience, but they are less agreeable. They also suffer from a self-enhancement bias and tend to overestimate their intelligence and performance compared to others. Furthermore, subclinical high scorers on clinical narcissism tend to behave aggressively when their ego is threatened, more so than individuals with subclinical psychopathic or Machiavellian traits.

Typically, narcissists report having numerous high quality interpersonal relationships. However, when self- and partner reports are examined, narcissists appear to exaggerate the quality and quantity of these relationships. Specifically, regarding romantic relationships, narcissists appear to be desirable partners at the beginning of relationships, but eventually the grandiose self-absorption becomes problematic for the partner and leads to dissolution of the relationships.

Machiavellianism

Machiavellianism derives from the sixteenth-century writings of Niccolò Machiavelli, where he expressed the view that the most effective monarchs are self-serving and deceitful in his book *The Prince*. In the 1960s, Richard Christie conceptualized Machiavellianism as a personality trait broadly defined by the manipulative nature reflected in Machiavelli's writings. By creating a series of personality assessment items based on Machiavelli's description of the trait characteristics, Christie demonstrated that individuals vary along a continuum of Machiavellianism, providing evidence for individual differences in levels of the construct.

Machiavellianism is characterized by deception, self-interest, and manipulation. Individuals exhibiting high levels of Machiavellianism commonly use a number of manipulation tactics such as flattery for interpersonal gain or to further their own interests. Machiavellians tend to possess a cynical worldview in which they are unlikely to demonstrate concern for the welfare of others above their own well-being. Machiavellianism bears a closer resemblance to psychopathy, relative to narcissism. Both Machiavellianism and psychopathy are negatively associated with conscientiousness.

However, unlike the impulsive nature of the psychopath, those high in Machiavellianism are more likely to carefully and deliberately plan ways to exploit others in order to further their own interests, such as in short-term mating situations. In order to derogate mating competitors, those high in Machiavellianism are more likely than high-psychopathy individuals or high-narcissism individuals to speak about the competitor in an offensive or rude way, providing evidence for their lack of morality and concern for others. Furthermore, those high in Machiavellianism are less susceptible to self-enhancing biases than are high-psychopathy individuals and high-narcissism individuals. Despite these differences, both those high in Machiavellianism and high-psychopathy individuals tend to exhibit emotional detachment in interpersonal relationships. Furthermore, those high in Machiavellianism, along with high-narcissism individuals, are described as more likely to be interpersonally irritating than threatening.

High scorers on Machiavellianism are perceived to be intelligent and attractive by their peers. However, Machiavellianism is unrelated to real world success or intelligence, perhaps due to their tendency to engage in unethical and dishonest behaviors such as lying,

stealing, or cheating. It is not surprising, then, that high Machs are more likely to cheat and plagiarize in school than are low or non-Machs, especially in situations where there is a low likelihood of cheating being detected. In interpersonal relationships, Machiavellians tend to lack empathy and possess an internal locus of control. Researchers have speculated that this is due to their expectation of control and focus on the self in social interactions. In all other domains, however, Machiavellians tend to possess an external locus of control.

High scorers on Machiavellianism tend to exhibit a cognitive style that is low in complexity. Researchers have contended that this is due to the notion that non-Machs are more interpersonally sensitive to others' needs and emotions, and individuals who display these interpersonal characteristics are more likely to possess more complex interpersonal systems. Thus, those high in Machiavellianism do not display the same high interpersonal cognitive complexity as do non-Machs.

The most commonly employed assessment tool for Machiavellianism is the 20-item MACH-IV (Christie & Geis, 1970). The MACH-IV is a self-report questionnaire consisting of three subscales: Morality, Tactics, and Views. The MACH-IV is measured on a 7-point Likert scale where participants rate their agreement with a series of statements. Previous literature has indicated that the measure possesses strong reliability coefficients and validity.

See Also

Antisocial Personality Disorder
Narcissism, Assessment of
Narcissistic Personality Disorder
Psychopathy
Sadism-Masochism

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Decisional Styles

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Definition of Decisional Styles and Indecisiveness

Decisional styles and indecisiveness are relevant constructs in relation to career decision-making process. Decisional style was defined as a habitual pattern individuals that use in decision-making (Driver, 1979); the typical way, as a personal characteristic of the decision-maker, to perceive and respond to the decision-making tasks (Harren, 1979); a habit learned that is different among individuals regarding the amount of information and the number of alternatives considered in the decision-making process (Driver, Brousseau, & Hunsaker, 1993). Scott and Bruce (1995) define decisional style as "the learned habitual response pattern exhibited by an individual when confronted with a decision situation. It is not a personality trait, but a habit-based propensity to react in a certain way in a specific decision context" (p. 820). They identify five decisional styles: rational (a thorough search for and logical evaluation of alternatives); intuitive (a reliance on instincts and feelings); dependent (a search for advice and direction from others); avoidant (attempts to avoid decision-making); spontaneous (sensations, immediate intuitions, and desire to make the choice quickly).

  Mann, Burnett, Radford, and Ford (1997) define decisional styles as the individual differences in how people face the psychological conflicts emerging in the decision-making process. They individuate the following decisional styles: the adaptive one is vigilance (a careful and adaptive approach, directed to the clarification of the objectives to be achieved through the decision-making process and the evaluation of each alternative before deciding). The maladaptive decisional styles are: avoidance (the tendency to avoid decision-making by assigning the responsibility of the decision to others); procrastination (the tendency to postpone the moment of addressing the decisional conflict); hypervigilance (the tendency to search frantically for a way to resolve the decisional conflict). In particular, the model by Scott and Bruce and the model by Mann et al. can be considered models of reference.

More recently, Thunholm (2004) gave an integrated definition of decisional style that is "the response pattern exhibited by an individual in a decision-making situation. This response pattern is determined by the decision-making situation, the decision-making task, and by the individual decision-maker. Individual differences between decision makers include differences in habits but also differences in basic cognitive abilities such as information processing, self-evaluation and self-regulation, which have a consistent impact on the response pattern across different decision-making tasks and situations" (p. 941).

In the decision-making literature, the indecisiveness construct is also relevant. It refers to the inability to make decisions in a timely manner in different situations and domains of life; a chronic inability to make decisions in diverse contexts (Frost & Shows, 1993). Indecisiveness represents an individual's problem in taking decisions in any part of his or her own life. Indecisive subjects can thus be defined as individuals with problems in taking any kind of decision, regardless of its importance.

Measurement of Decisional Styles and Indecisiveness

The two more frequently used measures of decisional styles are the General Decision-Making Style (GDMS; Scott and Bruce, 1995) and the Melbourne Decision Making Questionnaire (MDMQ; Mann et al., 1997).

The GDMS contains 25 items with response options on a 5-point Likert-type scale, ranging from 1 (*strongly disagree*) to 5 (*strongly agree*). It assesses five decisional styles: Rational (e.g. "I make decisions in a logical and systematic way"); Intuitive (e.g. "When I make decisions, I tend to rely on my intuition"); Dependent (e.g. "I rarely make important decisions without consulting other people"); Avoidant (e.g. "I avoid making important decisions until the pressure is on"); Spontaneous (e.g. "I generally make snap decisions").

The MDMQ is composed of 22 items with a response options on a 3-point Likert scale (1 = *not true*, 2 = *sometimes true*, 3 = *true*). It assesses four decisional styles: Vigilance (e.g. "I am very careful before making a choice"), Avoidance (e.g. "I avoid making decisions"); Procrastination (e.g. "I postpone making decisions until it is too late to make a choice"); Hypervigilance ("Whenever I face a difficult decision I feel pessimistic about finding a good solution").

The more frequently used measure of indecisiveness is the indecisiveness scale (IS, Frost & Shows, 1993). This scale measures indecisiveness using 15 items, with a 5-point Likert-type response scale (from 1 = *strongly disagree* to 5 = *strongly agree*). Examples of items are: "When ordering from a menu, I usually find it difficult to decide what to get"; "It seems that deciding on the most trivial thing takes me a long time."

Similarities of Decisional Styles and Indecisiveness to Other Constructs

Decisional styles and indecisiveness are studied in relation to personality traits to examine similarities and specificities.

Decisional styles are not personality traits even if they are associated with Big Five personality traits. Relations emerged between decisional styles according to the Scott and Bruce (1995) model and Big Five personality traits. Extraversion is positively associated with intuitive and spontaneous decisional styles, that are relative to modalities of decision based on instincts, feelings and sensations, immediate intuitions. Openness is positively associated with intuitive decisional style, underlining the importance of openness to experience for a decisional style based on sensations and intuitions. Agreeableness is positively associated with dependent decisional style, probably because agreeable individuals are more cordial and cooperative and so they could be more dependent on the judgment of other people. Conscientiousness is positively associated with rational decisional style, characterized by search for the logical evaluation of alternatives. Neuroticism is positively associated with avoidant decisional style, linked to attempts to avoid anxiety related to the decision-making process.

According to Mann et al. (1997) model, relations emerged with Big Five personality traits. Particularly, with respect to extraversion a positive relation emerged with vigilance and inverse relations emerged with maladaptive decisional styles of avoidance, procrastination, and hypervigilance. Extraverted individuals have the tendency to be social, enthusiastic, optimistic, energetic. These characteristics facilitate a vigilant decision-making style. Also in relation to agreeableness a positive relation emerged with vigilance and inverse relations emerged with avoidance, procrastination, and hypervigilance. Individuals with high agreeableness have the tendency to be cheerful, adaptive and co-operative. They have a high level of activity or enthusism to do any kind of tasks. They will be able to interact with many people to collect and share information to solve decisional problems. So more agreeable individuals could also be more vigilant.

Furthermore, concerning conscientiousness, a positive relation emerged with vigilance and inverse relations emerged with avoidance, procrastination, and hypervigilance. Conscientious people have to be goal-directed and motivated and these characteristics are fundamental for the vigilant decision-maker who evaluates alternatives and develops strategies to reach desired goals. With respect to openness, a positive relation emerged with vigilance and inverse relations emerged with avoidance, procrastination, and hypervigilance. Individuals with high openness tend to be receptive to new ideas and are curious. These characteristics are important for a vigilant decision-maker and for the capacity to develop adaptive strategies in decision-making. Finally, regarding neuroticism, positive relations emerged with avoidance, procrastination, and hypervigilance and an inverse relationship emerged with vigilance. Neurotic individuals tend to experience negative effects, to have poor coping when they encounter stress and have the tendency to perceive more negative life events. Making decisions can be stressful and vigilant decision makers can have confidence to handle this stress and so reach a productive decision.

Regarding similarities and specificities of indecisiveness in relation to personality traits, relations emerged between indecisiveness and different personality characteristics. Indecisiveness results from trait anxiety, obsessive compulsive phenomena, and perfectionism.

Indecisiveness is also associated with Big Five personality traits. In particular, a positive relation emerged between indecisiveness and neuroticism, underlining a general tendency to experience negative feelings of anxiety and distress associated with experiences of difficulty and discomfort in making decisions. Furthermore, an inverse relation

between indecisiveness and conscientiousness emerged, highlighting that characteristics such as self-discipline, perseverance, and a tendency to complete tasks were negatively associated with problems completing decisional tasks. An inverse relation between indecisiveness and extraversion also emerged, underlining characteristics such as being energetic and gregarious were negatively associated with the research of support from others that can be helpful in decision-making.

Explanations of Decisional Styles and Indecisiveness

The research regarding explanation of decisional styles and indecisiveness is particularly focused on psychological antecedents.

Regarding psychological antecedents of maladaptive decisional styles, it is possible to underline irrational belief (as for example, belief that there is a unique possibility of right choice, belief that once a decision is made it cannot be changed), anxiety, fragile self-esteem, lack of information. Adaptive decisional styles are favored by better capacity for problem solving and searching for information, high self-esteem and positive self-concept, high ability to manage emotions connected to decision-making process.

Concerning indecisiveness, some antecedents were individuated in a tendency to experience negative emotions in a wide range of situations including decision-making. Trait anxiety, obsessive compulsive phenomena, and perfectionism could be antecedents of indecisiveness. Also difficulties in emotion-regulation could contribute to indecisiveness.

Dealing with Decisional Styles and Indecisiveness

In the literature, some programs to enhance decisional styles exist. In particular, specific programs were developed to enhance adaptive decisional styles according to the two principal models of Scott and Bruce (1995) and Mann et al. (1997).

The training based on the Scott and Bruce model (1995) aimed to develop a rational style in decision-making that is characterized by a thorough search and logical evaluation of alternatives. The exercises are focused on the development of this rational approach to decision-making, promoting the rigorous collection of information and a detailed evaluation of different options.

Regarding the model by Mann et al. (1997), the traditional enhancement program is the GOFER. This program is based on the theory of decisional conflict by Janis and Mann (1977) that describes the decision-making process undertaken in difficult and stressful conditions. The GOFER aims to promote decision-making, increasing a vigilant decisional style. In fact the vigilance requires an accurate information elaboration to lead to a more careful decision. The GOFER is applied with a group modality and is articulated in different units focused on various aspects of decision-making as for example decisional problem solving, survey values and objectives, considering a wide range of alternative actions, searching for information, weighing the positive and negative consequences of the options, planning how to implement the options.

Furthermore, programs to deal with indecisiveness are based on exercises that permit clarification of one's own decision-making goals, consideration of the costs of not making a decision, enhancing decision-making problem solving, managing emotions, and focusing on concrete elements rather than on one's own emotions in making a choice.

See Also

Adaptability
Self-efficacy, Career

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Defense Mechanisms, Contemporary Perspectives

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The concept of defense mechanisms was first introduced by Sigmund Freud in 1895, as part of his theory of the dynamic unconscious and as part of his understanding of psychopathological phenomena and their treatment. In Freud's conception, psychic life was a constant battle between wishes and prohibitions. While wishes, connected by Freud with the unconscious drives, influence human behavior and decisions, prohibitions make possible civilized life, where only certain wishes can be satisfied in a certain way. To find a compromise between the two, the Ego deploys defense mechanisms in order to find a non-prohibited satisfaction in reality or fantasy.

Defense mechanisms are unconscious (just as drives and wishes are) and are being activated automatically. It is impossible for one to decide whether to use them or not. This makes it difficult for us to recognize that we are using defense mechanisms or to introduce changes in the modes of usage.

The function of defense mechanisms can be twofold. First it is related to the reduction of anxiety provoked by forbidden wishes, as described above. Second, they may help us achieve and/or retain social desirability and make (almost) perfect self-representations, hiding unacceptable wishes from ourselves and others.

Defense mechanisms are not pathological phenomena per se. They are used by everyone in our everyday lives and are rather helpful. If they are, however, used too frequently and/or too rigidly, that may lead to specific character structures and mental disorders, while some defense mechanisms are believed to be typical for certain mental disorders (see below). One effect of psychotherapeutic treatments should be to make inner conflicts less intense and thus defense mechanisms less needed and more flexible.

Types of Defense Mechanisms

The most comprehensive account of defense mechanisms was provided in the 1936 book *The Ego and the Mechanisms of Defense* by Anna Freud. In it, the following mechanisms were described:

- repression: this is the most effective and direct defensive mechanism. Repression reduces anxiety by keeping a mental image (and not the drive wish) out of consciousness. It is the basis of most other defense mechanisms, which work in indirect ways, only if/when the repression could not do the job. It is also a rather "expensive" mechanism, because one must constantly invest energy in not letting the image return to consciousness. It is considered to be typical for hysteric personalities;
- isolation: this mechanism divides an experience or memory from emotions, so that it remains "dry" and does not provoke anxiety: "the experience is not forgotten but instead is deprived of its affect, and its associative connections are suppressed or interrupted so that it remains as though isolated" (Freud, 1926, p. 120). It is considered to be typical for obsessive personalities;
- projection: this mechanism externalizes unacceptable wishes, affects, or internal objects, so that you recognize them in other people and believe they have them and not you. It is considered to be typical for paranoid as well as phobic disorders;
- introjection: this mechanism was introduced by Sandor Ferenczi in his first psycho-analytic paper, presented in 1908. Opposite to projection, it refers to a process of making something external become a part of the Ego or Super-ego, but not fully integrated. As it is frequently connected to the loss of an important object, it is considered to be typical for depression (Freud still used the term melancholia). Introjection can also be a normal developmental process, a way to acquire skills, and gain knowledge;
- reaction formation: this mechanism is based on exaggerated expression of the emotion opposite to what we really feel, for instance being too kind to someone with whom we are angry. It is believed that it starts forming in the anal phase, under the influence of the Super-ego, and leading very quickly to generalizations;
- regression: this mechanism makes the Ego retreat to more primitive ways of functioning, satisfaction, and relationships, for instance like a child who is faced with sharing attention with a younger sibling and starts behaving like an infant;
- reversal into the opposite: this mechanism refers to turning passive experience into active action or vice versa;
- undoing: this mechanism includes an action that is aimed at erasing impulses that might cause anxiety, even if they are related to positive experiences (like therapeutic improvement); obsessive personalities.

In the work of Sigmund Freud, several defense mechanisms were described that did not make it to the above list:

- displacement: this mechanism substitutes a forbidden object with another that is acceptable or less threatening for the Ego, so that original wishes are kept out of consciousness. It can be applied to thoughts, relationships, emotions or time;

- sublimation: this mechanism is explained by Freud's idea (1908) about "the capacity of the sexual instinct to alter its original aim into a non-sexual aim that yields socially valued activities." It was most frequently applied to intellectual and artistic activities, but later also to turning aggression into motivation to become a surgeon. Because it allows satisfaction without repression, sublimation is considered to be the most sophisticated defense mechanism.

In the coming decades, the so-called more primitive defenses were described (mostly by Melanie Klein, subsequently by Otto F. Kernberg). This term implies that the defense mechanisms belonging to this group are developmentally earlier and that they are mostly used by persons with more fragile personality organizations or those in deeply regressed states of functioning. These defenses include:

- splitting: this mechanism is a reaction to deep ambivalence and leads to division of self and/or objects into all-good and all-bad parts; it is typical of trauma-related and personality disorders;
- projective identification: this mechanism is about depositing previously split off parts of the self in the other person, who is then identified with the projected part. It is also an effort at establishing omnipotent control over others, but may also be a benign form of everyday communication;
- idealization: this mechanism is based on assigning too much value to self or others (persons, organizations, ideas), so that nothing bad can be found in them and every idea of their badness must be excluded;
- denial: this is a mechanism of avoiding anxiety by not seeing the obvious or "waiting for nothing to happen." It may be a transient state in many of us, but may also have generalized and permanent forms;
- manic defenses: this group of mechanisms is aimed against depressive anxieties via omnipotence, denial, and idealization.

Almost all of these mechanisms are present in the Diagnostic and Statistical Manual of the American Psychiatric Association, forming, thus, the basis of clinical thinking for many researchers and practitioners.

Other Conceptions of Defense Mechanisms

It is now considered that Freud's conception was under strong influence by the then-current mechanistic trends in natural sciences and also very pessimistic. In the 1960s, Gerald Caplan introduced the idea of coping mechanisms, behavioral and cognitive efforts at reducing stress and anxiety. These were similar to defense mechanisms, yet more conscious and controllable. While the improvement of defense mechanisms depended on long-term psychoanalysis, coping mechanisms can be quickly be trained. This concept was very influential in the domain of preventive psychiatry (community mental health care).

George Vaillant (1992) introduced "more mature" or "highly adaptive" defenses: altruism, humor, suppression, anticipation, sublimation. These are, in his opinion, used voluntarily and not in relation to conflict. Vaillant also did a lot of empirical research in order to demonstrate the importance of these mechanisms.

Empirical Research on Defense Mechanisms

The number of empirical studies about defense mechanisms has increased over the last couple of decades. Reviewers have concluded that the concept has received "impressive confirmation" and that the best documented are the mechanisms of reaction formation, isolation, and denial (Baumeister, Dale, & Sommer, 1998). Among the most relevant studies in the domain of social and personality psychology are the following:

- about reaction formation: women with high "sex guilt" reported not being sexually aroused by erotic stimuli, while physiological measures showed otherwise; people experimentally "labelled" to be racially prejudiced would give more money to an African American than to a Caucasian beggar;
- about projection: men who were told they had homosexual tendencies started attributing more homosexual tendencies to other men; in another study it was found that projection was active, but not like psychoanalytic literature would expect it to do: the repressed thoughts were more available and then shaped the perception of social interactions;
- about displacement: in an experimental study, subjects were intentionally frustrated and blood pressure dropped most in those who expressed anger at the person who caused the frustration compared to an assistant or student. This is related to what in research literature is often called excitation transfer and scapegoating. It is important to note that this experiment fails with narcissists;
- about undoing: there is a lot of experimental evidence for this conception, also known as counterfactual thinking. It was shown that it does not change the perception of the past or remembrance;
- about isolation: those prone to repression do not have fewer unhappy memories, but process them in a minimal, rushed and superficial way, or concretely like in suicide notes, and fail to connect them into associative networks. In research literature, it is called "temporal bracketing": a past fault has nothing to do with the present self;
- about suppression: it was shown that people can be partly successful in suppressing thoughts, but that these thoughts would then return more frequently (Baumeister et al., 1998);
- about denial: it was found that people use more external attributions for failure than for success. It was noticed by health psychologists and described as "unrealistic optimism" or "the illusion of unique invulnerability." There is some evidence that it is most prominent in trauma survivors.

See Also

Anxiety
Clinical Applications of Psychodynamic Theory of Personality
Coping
Object Relations Theory
Obsessive Personality
Paranoid Personality Disorder

Phobia
Post-traumatic Stress Disorders
Sigmund Freud
Unconscious Processes

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Depression

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Depression is a common and debilitating disorder that is highly recurrent. It is associated with significant economic, social and personal cost due to the number of sick days, medical expenses, and lowered quality of life it engenders. Depression is the leading cause of disability worldwide (WHO, 2012), and accounts for $60 billion in lost productivity in North America each year. Individual suffering is considerable; depression predicts divorce, poor interpersonal and occupational functioning, and low socio-economic status. Approximately 4–7% of depressed individuals kill themselves, and depression is associated with greater risk of obesity, metabolic syndrome, diabetes, stroke, and all-cause mortality (see Gotlib & Hammen, 2014).

An episode of major depressive disorder (MDD) is defined by the Diagnostic and Statistical Manual of Mental Disorders (DSM-5; APA, 2013) as a period of at least two weeks of low mood (or irritable mood in children) and/or anhedonia (i.e. loss of interest or pleasure in previously reinforcing activities). Additional symptoms include changes in appetite or weight (increase or decrease), changes in sleep (insomnia or hypersomnia), psychomotor agitation or retardation, low energy or fatigue, poor concentration or difficulty making decisions, excessive or inappropriate guilt or feelings of worthlessness, and thoughts of death or suicide. Diagnostically, an individual must experience five out of nine symptoms. It is important to note that individuals from non-Western cultures are more likely to endorse somatic symptoms, such as disturbances in sleep, energy, or appetite, than affective symptoms, such as depressed mood. As well, diagnosticians must use their clinical judgment to determine whether depressive symptoms constitute an episode of MDD, or are a normative reaction to a major stressful life event involving loss (e.g. financial ruin, bereavement), whereby a diagnosis of MDD should be deferred.

Dysthymia, also known as Persistent Depressive Disorder in the DSM-5, is characterized by depressed mood (or irritable mood in children) experienced for at least two years (or one year in children), during which there are no more than two consecutive months that the individual is asymptomatic. In addition to low mood, individuals must also experience at least two other symptoms, some of which overlap with MDD (i.e. changes in appetite,

changes in sleep, low energy or fatigue, poor concentration or indecisiveness), and others that are unique to the criteria set for dysthymia (i.e. low self-esteem, hopelessness), despite their common occurrence in individuals with MDD.

Epidemiology

MDD is among the most common mental disorders. Lifetime prevalence rates are 14.6% in high-income countries and 11.1% in low- to middle-income countries, and 12-month incidence rates are 5.5% and 5.9% in high- and low- to middle-income nations, respectively. Average age of onset of depression is during young adulthood (early to mid-twenties; APA, 2013), although first onset in late adulthood is not uncommon, and first onset in childhood and adolescence is becoming increasingly prevalent. Adolescent and adult females are 1.5–3 times more likely to experience depression than their male counterparts. However, in prepubescent children, there appears to be no gender difference in prevalence. Episodes of major depression last approximately 6–9 months on average (APA, 2013), and the majority of individuals spontaneously remit from an episode within 3–12 months (see Gotlib & Hammen, 2014 for a review of epidemiological findings).

The chronicity of depression largely accounts for its devastating personal and societal burden, whereby 50% of individuals who experience one episode of depression will experience another, and up to 90% of individuals who have experienced two or more episodes will suffer a recurrence. Risk of recurrence increases with each episode, and periods of wellness between episodes often become shorter as the disorder progresses. On average, individuals diagnosed with MDD experience five episodes in their lifetime. However, the course of the disorder varies substantially across individuals, such that some individuals rarely or never experience remission, whereas others experience years of full remission between discrete episodes, and still others only experience a single episode.

Those individuals with comorbid psychiatric disorders are more likely to have severe and chronic depression, and are less likely to respond fully to treatment. Comorbidity is the rule rather than the exception; for example, more than 50% of individuals with depression also have an anxiety disorder. Individuals with dysthymia are at an even greater risk of psychiatric comorbidity. Dysthymia is also associated with greater functional impairment, stress, dysfunctional personality traits, family history of depression, and younger age of onset than MDD.

Causal Factors

No single factor causes depression. Rather, the disorder results from an interaction of environmental, psychological, biological, and characterological risk factors. As with other disorders, vulnerabilities typically interact with stress in the environment to trigger the onset of a disorder in what is referred to as the diathesis-stress model. Severe life events, particularly those involving loss, are often associated with the onset of a depressive episode, particularly episodes occurring earlier in the course of the disorder. This stress likely interacted with a pre-existing risk factor, or diathesis, such as a cognitive vulnerability or biological

liability. Stressors occurring early in life, particularly childhood maltreatment, may result in maladaptive core beliefs, a cognitive vulnerability that, when activated by stress later in life, may result in depression.

Cognitive models posit that depressed individuals appraise situations more negatively than non-depressed individuals do. For example, depressive thinking is characterized by a number of cognitive distortions, including jumping to conclusions without requisite evidence and engaging in all-or-nothing thinking. These distortions are driven by schemas, which are organized core beliefs about the self, world, and future. Schemas containing negative content tend to be tightly interconnected and schemas containing positive information are diffuse in depressed individuals as compared to their non-depressed counterparts. Negative schemas filter information to fit with the individual's negative beliefs, thereby affecting how he or she attends to, encodes, retrieves, and interprets information. In turn, these negative cognitions result in both negative affect and maladaptive behavior.

Maladaptive behaviors are often aversive to others in the social context, and unsurprisingly, depression is associated with poor quality interactions, social deficits, and interpersonal stress. Depressed individuals are less expressive, engage in poor eye contact, and actively seek criticism from others that is consistent with their schemas ("negative feedback seeking"). They also engage in excessive reassurance seeking, a tendency to persistently seek assurance about one's worth and lovability regardless of whether that assurance has already been provided. These behaviors can result in conflict and rejection from close others. Consistent with these findings, individuals with depression have been found to generate stress, particularly in the interpersonal domain, which further exacerbates symptoms and is an important mechanism for maintaining the disorder.

Biological models of depression focus on genetic, neurochemical, and neurophysiological abnormalities associated with the disorder. Depression is associated with disrupted functioning of the serotonin, norepinephrine, and dopamine neurotransmitters, which regulate sleep, appetite, energy, activity, and pleasure. Depressed individuals also show elevated secretion of the stress hormone cortisol, which over time can result in brain cell death, particularly in the hippocampus, the part of the brain responsible for learning. Furthermore, depression is associated with sleep architecture abnormalities (less deep sleep and early onset of rapid eye movement sleep), decreased blood flow in the left frontal regions of the cerebral cortex, and overactivity of the amygdala, a brain structure implicated in processing emotions, particularly negative emotions.

Depression also has a genetic component, with heritability rates estimated around 40%. No one gene accounts for the heritability of depression. However some genes have been implicated in gene–environment interactions. For example, individuals who experience a highly stressful life event *and* who are homozygous for the risk allele of the serotonin transporter gene are at greater risk of developing depression than heterozygotes or individuals without the risk allele. It has been hypothesized that the risk allele of the serotonin transporter gene makes individuals more sensitive to stress. Indeed, genomic transmission of temperament likely accounts for a large proportion of depression's heritability. Depressed individuals, particularly those with chronic MDD or dysthymia, tend to exhibit high negative emotionality, which reflects sensitivity and emotional reactivity to negative stimuli, as well as high neuroticism. In addition, depressed individuals experience lower positive emotionality, which is related to extraversion, sociability, and reward sensitivity. Children with

high negative emotionality and low positive emotionality may also demonstrate behavioral inhibition, which is marked by few approach behaviors, fearfulness, and social reticence. Furthermore, depression is associated with sociotropy, a personality trait characterized by excessive dependency on others and overinvestment in interpersonal relationships.

Treatment

A number of biological and psychological interventions are used to treat depression. Interventions are selected based on history of response, family history of response, symptom profile, ease of administration or access to the intervention, potential side effects, contraindicators such as other health issues, cost, and patient preference. Medications include serotonin uptake inhibitors (SSRIs), serotonin-norepinephrine reuptake inhibitors (SNRIs), monoamine oxidase inhibitors (MAOIs), and tricyclic antidepressants. These all function by increasing levels of the neurotransmitters serotonin, dopamine, and norepinephrine in the brain to varying extents. However, these medications have side effects; they do not work for all patients, and if patients discontinue their use, they will likely relapse.

Psychotherapy is a useful alternative to medication as it has no side effects and prevents relapse and recurrence. Cognitive behavioral therapy (CBT) is one of the most commonly used and empirically supported therapies for depression. The goal of CBT is to help patients become more involved in reinforcing activities that give them a sense of pleasure or mastery (i.e. behavioral activation) and to help them to become aware of their thinking in order to learn to think in a more realistic manner. The therapist uses Socratic questions in order to guide the patient to make his or her own discoveries about his or her thought processes. The therapist also helps the patient to schedule reinforcing activities, to evaluate the accuracy of his or her thoughts and to come up with more balanced and accurate thoughts, and to conduct behavioral experiments to test his or her negative beliefs. Behavioral Activation has also been empirically supported as a stand-alone treatment for depression.

Other types of evidence-based therapies that are commonly used to treat depression include interpersonal psychotherapy and mindfulness based cognitive therapy (MBCT). Interpersonal psychotherapy addresses an individual's interpersonal conflicts, role transitions, grief, and social deficits with the view that depression occurs in a social context, and that disruptions in interpersonal relationships are an important type of stressor for causing and maintaining depression. Because depression is so chronic, MBCT is used to prevent relapse and recurrence in patients who have fully or partially remitted from a depressive episode with the perspective that relapse prevention is as important as symptom remission. This is achieved by teaching patients to non-judgmentally observe the present moment in order to detach from depressive, ruminative thoughts, and is efficacious for patients with three or more past episodes.

Neurostimulation and neurosurgical techniques are sometimes used for patients who are treatment-resistant (i.e. their depression has not remitted after trials of two classes of medication) and who are non-responders to psychotherapy. These include electroconvulsive therapy (ECT), transmagnetic stimulation (TMS), vagus nerve stimulation (VNS), and deep brain stimulation. All involve stimulating parts of the brain, which can result in increased blood flow, glucose metabolism, and release of neurotransmitters. Whereas ECT and TMS

are administered by applying electric and magnetic currents, respectively, through the skull, VNS and deep brain stimulation involve the surgical implantation of pulse generators. Though invasive, these interventions are promising for treating patients with chronic, severe, and treatment-resistant depression.

Future Directions

Even with state-of-the-art treatment, most depressed individuals relapse within two years. Research is needed that identifies which individuals are at risk for relapse and the causal mechanisms that underlie depressive recurrence, as well as how to best prevent recurrences. Moreover, improved matching of treatment to individuals is needed. Given the variability in response to biological and psychotherapeutic treatments, a better understanding of the neurochemical, hormonal, cognitive, and interpersonal basis of depression, and the interactions of these variables with each other and with various treatments over time, is needed.

See Also

Depressive Personality (Dysthymic Disorder)
DSM-V
Gender Differences in Subjective Well-Being
Hopelessness
Irritability/Moodiness
Learned Helplessness
Neuroticism
Personality and Depression

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Diagnostic and Statistical Manual of Mental Disorders, 5th Ed.: DSM-5

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What is the Diagnostic and Statistical Manual of Mental Disorders?

Published by the American Psychiatric Association, the Diagnostic and Statistical Manual of Mental Disorders (DSM) is an authoritative guide to the diagnosis and classification of mental disorders for clinical practice and research. The DSM standardizes diagnoses, thereby providing a common terminology to discuss psychopathology. Its influence is seen in an array of settings and systems, including public health policies, education, reimbursement systems, research, and forensic science.

Historical Overview

In 1949, the World Health Organization released the sixth edition of the International Classification of Diseases and Related Health Problems (ICD). This was the first edition to include a chapter on mental disorders. In response to the ICD-6, the American Psychiatric Association developed its own classification system, the DSM, which was first published in 1952.

The DSM-I was the earliest formal manual of mental disorders to focus on clinical use. It was influenced by the psychobiological approach of Adolf Meyer, which conceptualized mental disorders as stress reactions, and the psychoanalytic approach of Sigmund Freud, which emphasized unconscious forces. In 1968, the next edition was released. It introduced new disorders and increased compatibility with the ICD. The DSM-II was more influenced by a psychoanalytic approach than its predecessor, and no longer referred to disorders as "reactions" (e.g. schizophrenic reaction). The diagnostic definitions of the DSM-I and DSM-II were brief, vague, and did not include specific criteria.

There were several challenges that psychiatry encountered in the late 1960s and 1970s. These included the advent of other mental health professionals that had different theoretical orientations, polemics regarding asylum conditions, research that uncovered unreliability in diagnoses, and criticism of unproven etiological assumptions of the DSM. These events

contributed to a paradigm shift in psychiatry, away from a psychoanalytic approach and toward a biomedical model.

Consequently, the third edition of the DSM was radically different from its predecessors. The DSM-III placed a great deal of emphasis on empirical research, and field trials were conducted prior to its publication in 1980. It outlined specific inclusion, exclusion, and duration criteria for each disorder and did not endorse any theory of psychopathology. The DSM-III also introduced a multiaxial system such that diagnosticians had to evaluate and rate patients on five different axes or areas of functioning (e.g. Axis I contained most mental health disorders, Axis II pertained to personality disorders and intellectual disability, Axis III relevant medical conditions). The DSM-III-R, released in 1987, removed several of the exclusion criteria, thus allowing for more comorbid diagnoses. The DSM-IV was released almost a decade later in 1994. The novel features of the DSM-III and DSM-III-R were retained, and some changes were made based on extensive literature reviews and multisite field trials. The DSM-IV-TR, released in 2000, made changes to reflect new research, correct minor errors, and update the coding scheme to better match the ICD.

DSM-5

The American Psychiatric Association began an evaluation of the DSM-IV-TR in 1999. After a series of conferences, a task force was delegated to develop the DSM-5. Thirteen work groups were established to focus on each of the major diagnostic categories. The development of DSM-5 was a comprehensive process that was composed of literature reviews, reanalyzing existing datasets, and field trials to collect new data. The field trials were held in academic medical centers, community-based clinics, and practitioners' offices. Proposed criteria were also posted for public comments on a standalone website on three separate occasions. The work groups' proposal was then evaluated and reviewed by various groups. In May 2013, the DSM-5 was released.

The DSM-5 introduced several changes in the structure of the text and diagnoses of disorders. One of the principal changes was the elimination of the multiaxial system while still stressing the importance of assessing medical conditions, psychosocial factors, and functioning. Consequently, the DSM-5 has a different organization from its predecessors. It is composed of three sections and an appendix. The first section introduces the DSM, provides a description of the development process, and discusses guidelines for proper use. The second section contains the diagnostic criteria, associated features, diagnostic issues, and epidemiology for diagnoses that are approved for clinical use. This section is organized in 20 mental disorder chapters that are positioned in the manual to emphasize the posited communalities in vulnerabilities and neurological substrates. The third section describes emerging measures, models, and diagnoses that require further study. Lastly, the appendix provides a summary of changes from the DSM-IV to DSM-5, glossaries of technical terms and cultural concepts of distress, listings of diagnoses and codes, and advisors and contributors.

To incorporate a dimensional approach, the DSM-5 now requires the diagnostician to specify the severity of the disorder (i.e. mild, moderate, severe) for many diagnoses. There is also a hybrid categorical-dimensional model for personality and dimensional assessment tools to assess the presence and severity of symptoms (i.e. Cross-Cutting Symptom

measures) in Section III. To emphasize a life course-approach, the section of Disorders Usually First Diagnosed in Infancy, Childhood or Adolescence was eliminated and the corresponding disorders were reallocated to other chapters. Other notable changes included new chapters (e.g. Obsessive–Compulsive and Related Disorders, Gender Dysphoria), new disorders (e.g. disruptive mood dysregulation disorder), transition of disorders from the section for further study to those for clinical use (e.g. binge-eating disorder), combining multiple disorders into a single diagnosis (e.g. autism spectrum disorder subsumed Asperger's disorder, autistic disorder, childhood disintegrative disorder, Rett's disorder, and pervasive developmental disorder not otherwise specified), changes to diagnostic criteria for some disorders (e.g. elimination of the bereavement exclusion for major depressive disorder), and changes in terminology (e.g. intellectual disability and intellectual developmental disorder replaced mental retardation; American Psychiatric Association, 2013).

Controversies of the DSM-5

While the DSM-5 and its predecessors have achieved widespread acceptance, the classification system is characterized by several controversies.

Inability to Capture Risk Syndromes

The DSM-5 does not currently include subthreshold or prodromal syndrome diagnoses. These risk syndromes would allow for early identification of symptomatic precursors of disorders with poor prognosis, such as schizophrenia (Tsuang et al., 2013). There is a long-standing debate as to whether subthreshold inclusions of schizophrenia, also known as the prodromal phase of psychosis, could improve the socio-occupational decline through early intervention. However, researchers and clinicians should be cautious when assessing these presentations as medicalization of normal psychological experiences could enhance stigma for the diagnosed individual. Furthermore, arguments as to whether the prodrome is valid and predictive of future psychosis persist in the scientific community. The cost-benefit risk syndromes, thus, remains unknown. At present, attenuated psychosis syndrome has been identified as a condition needing further study and included in Section III of the DSM-5 (American Psychiatric Association, 2013).

Categorical Approach to Mental Illness

Research and clinical evidence have suggested that psychological attributes occur along a continuum based on frequency and severity, rather than as categorical syndromes. However, diagnostic nomenclature in the DSM-5 is based on whether a patient demonstrates a cluster of relevant symptoms within the criteria of the syndrome, without recognizing the degree to which certain symptoms exist. Thus, important information regarding the patient's holistic psychological experience is lost by quantifying a disorder as present or absent. To address this criticism, severity specifiers have been incorporated and dimensional tools proposed. However, a dimensional conceptualization of psychopathology is still lacking in this edition.

Creating Arbitrary Boundaries of Social Constructs

Diagnostic nomenclature may be influenced by social and political factors and not just the advancement in clinical sciences. For example, homosexuality was conceptualized as a form of sexual orientation disturbance in the DSM II, and ego-dystonic homosexuality in the DSM-III. Furthermore, researchers and clinicians have questioned the validity of duration criteria (i.e. arbitrary time course of symptoms) as to whether there are true etiological distinctions that exist or arbitrary boundaries.

Future Directions DSM-5

DSM-5 Cross-Cutting Symptom Measures

In response to criticisms of the categorical conceptualization of psychopathology, the DSM-5 work groups developed and proposed the incorporation of Cross-Cutting (CC) Symptom measures. The goal of this assessment is to use dimensional measures to capture co-occurring symptoms that do not fit neatly into diagnostic criteria, but may affect functioning or distress for the individual. The cross-cutting measures consist of two levels. Level 1 consists of 13 and 12 domains for adults and child/youth, respectively. Level 2 provides a comprehensive assessment of specific domains relevant to the individual assessed. The tools can be administered at baseline and at specific intervals to track treatment response and course of the relevant symptomatology in patients over time across treatment settings (Clarke & Kuhl, 2014). The measures were placed in Section III of the DSM-5.

Such a system serves as a solution for the problem of comorbidity and greater specificity with greater accuracy in conceptualization of symptomatology during each assessment. In one study, clinicians rated dimensional measures higher than the DSM-IV in five of six aspects of clinical utility, including client communication, treatment planning, professional communication, comprehensiveness of difficulties, and description of global personality (Lowe & Widiger, 2009). The enhancement of dimensional profiles as part of regular practice shows a promising future for greater clinical utility.

Future Updates

The DSM-5 task force has suggested that the fifth edition will differ from its predecessors as it will be a "living document" that undergoes continuous revisions (American Psychiatric Association, 2013). The intent of this change is evident as the numerical convention changed from Roman to Arabic numerals to provide more frequent and consistent incremental updates (e.g. DSM-5.1, DSM-5.2).

Alternative Diagnostic Systems

There are two widely used and authoritative texts for classifying mental disorders: DSM-5 and ICD-10. The ICD-10 is more commonly used by clinicians in the European Union while the DSM-5 is more commonly used by clinicians in Canada and the United States. The ICD-10 is generated and maintained by the World Health Organization for

international standardization of diagnostic classification for health conditions and compilation of international health statistics. It includes classification of mental and behavioral disorders in Chapter V.

To address some of the limitations of the ICD-10 and the DSM-5, the National Institute of Mental Health has launched the Research Domain Criteria (RDoC) project to create a diagnostic taxonomy using biomarkers of mental disorders. The system would be analogous to those in medicine, such that mental illness is conceptualized as a brain disorder that can be objectively measured using advances in molecular genetics, genomic sequencing, and clinical neuroscience. RDoC is in its early stages of development and is, for now, a research framework rather than a clinical tool (Berenbaum, 2013).

See Also

Anxiety
Anxiety, Assessment of
Depression
Human Genome Project and Personality
Sigmund Freud

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Empathy, Personality Correlates of

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Overview

Empathy is the ability to understand and vicariously experience the emotions of others. Whether through observation or imagination, the act of empathizing entails placing oneself in another's shoes, coupled with the experience of similar affect. Due to its key role in social interactions, empathy has long been of interest to researchers and clinicians. It is central to humanistic and positive psychology, and it is embedded in descriptions of emotional intelligence such as the Trait Emotional Intelligence Questionnaire (TEIQue; see Andre, Siegling, Aloe, Baldaro, & Petrides, 2016, for a review). However, empathy is inconsistently defined. Disagreement surrounds how to disentangle empathy from overlapping constructs such as emotional contagion, compassion, and sympathy. Nonetheless, there is a growing consensus that empathy is best understood as a multidimensional construct composed of cognitive and affective components, both with distinct neural underpinnings.

While cognitive and affective empathy are undoubtedly related, they have important conceptual differences. The affective component refers to a vicarious emotional experience – feeling what the target is feeling – and one's capacity to respond with an appropriate emotional reaction. In contrast, the cognitive component refers to recognizing, understanding, and perspective-taking, and does not imply the compassionate concern of the affective component. Though these systems work independently, they operate in concert to varying extents during an empathic experience.

Development

Although individuals of all ages differ on levels of dispositional empathy – the tendency to respond empathetically – its development across the lifespan is relatively consistent. Humans appear biologically predisposed to respond with empathy; for instance, infants as young as two weeks react with concern to the crying of other infants. Additionally, while

one may not think of toddlers as empathetic, children's ability to express concern grows alongside their self-awareness – empathetic responses can manifest as early as a toddler's second year. The ability to understand others' viewpoints continues to develop over the course of childhood.

Twin studies suggest dispositional empathy is heritable to a degree, but past findings indicate the familial environment also plays a role. As has long been known, in infancy, a caring emotional style and physical contact from the mother are linked to secure attachment. Secure attachment, in turn, has been shown to predict higher empathy (Mark, IJzendoorn, & Bakermans-Kranenburg, 2002). Infants also learn a great deal from their mothers' communication; babies raised by mothers with depression show impairment in the ability to match vocal tone with facial expressions, and produce less diverse expressions themselves. As the child grows, inconsistent and abusive rearing has been shown to stunt empathy, while responsive, authoritative parenting fosters it. Additionally, parents who model prosocial behaviors, respond positively to their children's needs, and nurture their children's cognitive development help their children develop empathy. Outside the family, co-operative play with peers may contribute to the development of empathy, as it necessitates that children consider the feelings of others.

Owing to both dynamic situational factors and static individual differences, adults vary on levels of dispositional empathy. Context matters; it is well-documented that members of one's perceived in-group elicit more empathy than those of an out-group. Empathy can also be constrained if an individual feels fearful. Other variations in empathy can be explained by stable factors such as gender and cultural identity. Culture has been comparatively less explored, but there is evidence that individuals from Western cultures express empathy differently from those from Asian cultures – Westerners appear to demonstrate comparatively more empathic concern and less personal distress (Cassels, Chan, Chung, & Birch, 2010). The role of gender has been investigated in greater detail, though there is debate regarding the extent of these differences and on the developmental reason for their existence. Regardless, women score higher on self-reported empathy, demonstrate advantages in non-verbal emotional recognition abilities such as identifying facial expressions and understanding body language, and are more likely to engage in prosocial behavior. Furthermore, disorders marked by deficiencies in empathy are more prevalent in men. Neuroimaging findings on gender differences, however, are less consistent. On the one hand, some neuroimaging studies have found structural differences in the brains of men and women. On the other hand, other studies have found that men and women demonstrate comparable neural responses while viewing another in pain (Groen, Wijers, Tucha, & Althaus, 2013).

Functions

Empathy is crucial for successfully navigating relationships. From an evolutionary perspective, the survival goals of humans are met largely through successful social interactions; picking a mate, caring for kin, and maintaining bonds are all aspects of life facilitated by empathy. The necessity of empathy is perhaps most apparent when we consider disorders characterized by its absence. Among others, autism and psychopathy involve deficiencies in the capacity to empathize, resulting in behaviors that deviate from social norms.

For individuals with autism, the inability to step into another's shoes can create problems interacting with others. These individuals often experience difficulty communicating in a way appropriate to the social context and have trouble understanding non-literal messages. In contrast, psychopaths often engage in reckless, wanton behavior with little concern for others. Non-pathological deficiencies in empathy are also associated with characteristics such as alexithymia (a term which translates to "no words for emotions"), as well as with the Dark Triad personality traits of Machiavellianism, narcissism, and psychopathy.

The ability to take another's perspective enables understanding and co-operation. As it is by definition an other-centered state, empathy predicts acts of prosociality that cannot otherwise be explained by self-serving goals. In addition to promoting positive behaviors, empathy diminishes negative ones. For example, cultivating empathy inhibits aggression, while lacking empathy is linked with violence, bullying, unstable relationships, and criminal behavior. Empathy also plays an important role in the therapeutic relationship of healthcare professionals with their clients. Humanist psychologist Carl Rogers considered it a necessary characteristic for the therapist to have, in order to ensure the client felt understood and respected. The benefits are evident in all therapeutic alliances; empathetic practitioners facilitate better health outcomes, inspire more confidence in their abilities, and have clients who report greater satisfaction with their care. Additionally, empathy plays a role in social learning. Understanding the feelings of others can help individuals better understand their environment. Seeing someone fearful, for example, can be a safe but effective way to learn about potential threats.

It should be noted that empathy is not related to exclusively positive outcomes. Individuals with particularly high amounts of empathy can experience distress, and this problem has been suggested as one explanation for compassion fatigue in healthcare professionals (a phenomenon often resulting in negative consequences for both providers and patients). Experiencing excessive empathy has been suggested to contribute to depression, though findings are mixed. It is also worth noting that in certain situations – such as where manipulation is necessary to achieve a goal – a lack of empathy could be adaptive.

Measurement

Numerous measures have been devised to assess empathy, with some instruments dating back to the 1940s. Many of these are self-report questionnaires, but empathy is also assessed using behavioral measures (such as test performance and responses to stimuli) as well as neuropsychological techniques (involving magnetic resonance imaging, MRI; electroencephalography, EEG; and measures of heart rate). Some self-report measures that capture both the cognitive and affective components of empathy include the Interpersonal Reactivity Index (IRI), the Empathy Quotient (EQ), and the Questionnaire of Cognitive and Affective Empathy (QCAE).

The IRI assesses four facets of empathy: empathic concern, personal distress, perspective-taking, and fantasy (two affective and two cognitive facets, respectively; Davis, 1983). Each of the subscales contains seven questions, for a total of 28 items. When correlating the IRI with the Big Five personality inventory, empathic concern relates highly to agreeableness, perspective-taking with a combination of openness and agreeableness, while personal

distress is largely explained by neuroticism (Mooradian, Davis, & Matzler, 2011). Some researchers dispute the importance of the fantasy subscale (which assesses the tendency to identify with fictional characters), arguing that it may not truly be assessing empathy. Fantasy also does not correlate as highly with the Big Five measure of personality. For these reasons, it is sometimes omitted.

Another more recent option is the EQ, a reliable measure of empathy that is intended to be brief and easy to administer. Designed with clinical applications in mind, the EQ was validated on a psychologically healthy sample as well as a sample of adults with autism (Baron-Cohen & Wheelwright, 2004). Critics of the EQ have argued that it measures the process of experiencing empathy rather than the underlying construct. Nevertheless, it correlates moderately with the IRI and has demonstrated good test–retest reliability.

The QCAE is a recent questionnaire that builds upon earlier tests considered psychometrically flawed. It has been argued, for example, that the EQ does not give enough consideration to the multidimensionality of empathy, and that there is difficulty in understanding the relationships between the subscales (Reniers, Corcoran, Drake, Shryane, & Völlm, 2011). The 31 items of the QCAE were derived from various empathy measures, including the aforementioned EQ and the IRI. However, as it is newer, there is comparatively less support for its validity in the literature presently.

Some researchers may choose to measure empathy using behavioral measures such as Picture Viewing Paradigms, which assess self-reported empathy based on individuals' responses to emotional images. The Picture Viewing Paradigm has good internal consistency, though test–retest reliability has yet to be demonstrated. Another possibility is the Kids' Empathic Development Scale, which assesses cognitive, affective, and behavioral aspects of empathy in school-age children, incorporating tests of emotion recognition in conjunction with self-report measures (Reid et al., 2013).

There are neuroscientific options for assessing empathy as well, typically used in conjunction with self-report and behavioral tests. MRI, which uses a magnetic field to produce non-invasive images of brain tissue, is one possibility. Functional MRI (fMRI) goes beyond MRI to produce images of neural activity levels. Findings from research utilizing these techniques have shown that individual differences in empathy correlate with aspects of brain structure, and that activity in many brain regions is associated with empathetic responding. For example, perspective-taking as measured by the IRI has been shown to correlate with gray matter volume (specifically in the left anterior cingulate). Overall scores on the EQ have been shown to correlate with gray matter volume in several regions as well. Another neuroscientific option is EEG, which measures the electrical activity produced by neurons. Findings from EEG studies have highlighted the role of the prefrontal cortex in empathetic responses. Researchers can also utilize measures of heart rate or facial electromyography – which measures muscular activity in the face – to assess distress reactions to emotional stimuli.

See Also

Compassion
Emotional Intelligence
Emotional Intelligence, Correlates of

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Emotional Competence

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Although we all experience and witness all sorts of emotional episodes throughout our lives, we markedly differ in the extent to which we process, identify, understand, express, regulate and use our own emotions and those of others. The concept of emotional competence aims to account for these differences. As we will see below, the level of emotional competence is a significant determinant of the four most important aspects of people's lives: mental health and well-being, physical health, interpersonal relationships, and work performance.

Historical Background

The concept of emotional competence sporadically appears in the literature in the 1970s, becoming more commonly used after Mary Ainsworth (1913–1999; attachment theorist) suggested in the late 1970s that children's attachment style would influence their social-emotional competence. In the 1980s, developmental psychologists such as Susann Denham extensively studied children's social-emotional competence, without, however, any specific theory or measure being developed. The first theoretical model of EC, put forward by Carolyn Saarni, dates from the 1990s. According to Saarni's model, EC includes eight dimensions: (1) Awareness of one's emotional state; (2) Ability to discern others' emotions; (3) Ability to use the vocabulary of emotions and to acquire cultural scripts that link emotions with social roles; (4) Capacity for empathy with others' emotional experiences; (5) Ability to realize that inner emotional states do not necessarily correspond to outer expressions, both in one's own case and that of others; the ability to understand that one's emotional expressive behavior may impact others and the ability to take this into account; (6) Capacity for adaptive coping with aversive or distressing emotions; (7) Awareness that the structure or nature of relationships is partly defined by the way emotions are communicated in the relationship; (8) Capacity for emotional self-efficacy: the individual views herself or himself as feeling, overall, the way he or she wants to feel: one accepts one's emotional experience where this acceptance is in alignment with the individual's beliefs about what constitutes desirable emotional "balance" (see Saarni, 1999a, p. 5).

Although Saarni transforms the term "social-emotional competence" into "emotional competence," interpersonal aspects remain central to her view; this is reflected in her very definition of the concept: "Emotional competence is the demonstration of self-efficacy in emotion-eliciting social transactions" (Saarni, 1999a, p. 1). Saarni not only believes that the vast majority of our emotions are anchored in social interactions. As a socio-constructivist, Saarni also views context as a central determinant of the individual's emotional functioning: context shapes the individual's motivations to deal with an emotion-eliciting episode, the demands and affordances available to that individual, and the values and beliefs the person brings to the emotional experience. In Saarni's view, it is therefore impossible and meaningless to develop standardized instruments of measure for emotional competence, for this would disregard the contextual influences on emotional responses (Saarni, 1999c).

The fact that no proper instrument for measuring EC was developed until the 2000s probably explains why the concept of EC remained confined for so long to the field of child developmental psychology. It was finally the exponential development of the closely related concept of *emotional intelligence* which brought the concept of EC back into the spotlight, stimulated the development of EC measures for adults and fostered the diffusion of the concept in the fields of individual differences and organizational, educational, social and health psychology.

Models and Measures of Emotional Competence

The first model of emotional competence was developed by Saarni in 1999 (see above). For the reasons already explained, this model was not accompanied by a corresponding measure. Despite its potential, it could therefore never be properly validated. After the notion of emotional intelligence became popular, consultants and companies developed several models of emotional competence for assessment and training purposes. To the best of our knowledge, none of these has been scientifically validated.

In 2009, Mikolajczak proposed a model of emotional competence inspired by both Saarni's model of emotional competence (1999b) and Mayer and Salovey's model of emotional intelligence (1997). It includes five dimensions central to both models: identification, understanding, expression, regulation, and use of emotions. As shown in Table 1, this model clearly distinguishes between processing one's own emotions and processing others' emotions, in other words, between the intrapersonal and the interpersonal components of emotional competence.

A few years later, the Profile of Emotional Competence (PEC) was developed in order to test the model. The model and the measure were validated in both Western and Eastern contexts (see Brasseur, Grégoire, Bourdu, & Mikolajczak, 2013 and Nozaki & Koyasu, 2015, respectively).

Emotional Competence: Ability or Trait?

Three levels of emotional competence must be distinguished: knowledge, abilities and traits. The knowledge level refers to what people know about emotionally competent behaviors (e.g. *Do I know* which emotional expressions are constructive in a given social situation?). The ability level refers to being able to apply this knowledge in a real-world situation (e.g. *Am I able to* express my emotions constructively in a given social situation?). The focus here is not on what people know but on what they can do: even though many people know

Table 1 *A Model of Emotional Competence* (adapted from Mikolajczak, 2009).

Dimensions	Self	Other
Identification	Capacity to identify my emotions and to distinguish between discrete emotional states	Capacity to identify others' emotions
Understanding	Capacity to understand my emotions and, especially, to distinguish between the trigger and the cause	Capacity to understand others' emotions and to understand that the person in whose presence the emotion is expressed may not be the cause of the emotion
Expression	Capacity to express one's emotions and to do so adequately (at the right time, with the right person and in the appropriate manner)	Capacity to listen to others' emotions without avoidance or judgment
Regulation	Capacity to regulate my emotions when their nature, intensity, or duration is not appropriate to my goals or to the context	Capacity to regulate others' emotions when needed
Use	Capacity to use emotions when they allow better personal or professional decisions to be made	Capacity to use others' emotions in order to achieve a goal
	Intrapersonal EC	**Interpersonal EC**
	Global EC	

that they should not shout when angry, many are simply unable to contain themselves. The trait level refers to typical emotional competence, namely, the way one usually behaves in emotional situations. (*Do I typically* express my emotions in a constructive manner in social situations?) The focus here is not on what people know or on what they are able to do, but on what they typically do over extensive periods of time. For instance, some individuals might be able to express their emotions constructively if explicitly asked to do so (so they do possess the ability), but they do not manage to manifest this ability reliably and spontaneously over time. These three levels of EC are only loosely connected – declarative knowledge does not always translate into ability, which, in turn, does not always translate into usual behavior – so they should therefore be assessed using different instruments.

Knowledge and abilities are essentially assessed using intelligence-like tests such as the Situational Test of Emotional Understanding (STEU; MacCann & Roberts, 2008), the Situational Test of Emotional Management (STEM; MacCann & Roberts, 2008) or the Geneva Emotion Recognition Test (GERT; Schleger, Grandjean & Scherer, 2014). Trait emotional competence is assessed using personality-like questionnaires such as the PEC (Profile of Emotional Competence; Brasseur et al., 2013).

Importance of Emotional Competence

The literature indicates that EC, and especially the trait level of emotional competence, has a significant impact on four of the most important domains of life: well-being, health, relationships and work performance.

People with greater EC, especially (but not only) high intrapersonal EC, have enhanced well-being and fewer psychological difficulties: they are more satisfied with their lives and are less prone to depression, anxiety, or burnout. They also have better physical health, as evidenced in a recent nationally representative study conducted in collaboration with the largest mutual benefit society in Belgium (Mikolajczak et al., 2015): people with higher EC consume less medication, need less frequently to see the doctor, and are less often hospitalized.

Socially speaking, people with higher EC have more satisfying social and marital relationships; both intra- and interpersonal EC seem to contribute to this effect. Finally, people with higher EC achieve superior job performance, especially in managerial positions, stressful jobs, or jobs involving high emotional labor.

As indicated by intervention studies, EC is causally involved in these outcomes. Compared with a control group on a waiting list or receiving training unrelated to EC, people receiving EC training see an improvement in their well-being, mental and psychological health and in the quality of their social relationships (see Mikolajczak & Pena, 2015 for a summary).

Evolution and Improvement of Emotional Competence

Both intra- and interpersonal competencies develop progressively in stages from birth to approximately 8 years old. Under the joint influence of brain maturation, parents' behaviors and cultural rules, children progressively learn how to decode, express, understand, regulate and use their emotions and those of the people around them (for complete accounts, see Eisenberger & Fabes, 1992; Holodynski & Friedlmeier, 2006; Saarni, 1999b). Most competencies are acquired by the age of 8 but continue to evolve, especially in the case of emotion regulation, until the prefrontal cortex terminates its maturation around the age of 20. So, although individual differences in emotional competence are already manifested in toddlers, these differences only stabilize at the onset of adulthood. It is important to understand that this stabilization does not mean crystallization. First, except for emotion utilization, all EC improves slightly but naturally with age until approximately the age of 70 (e.g. Brasseur et al., 2013; Fantini-Hauwel et Mikolajczak, 2014). Second, like most personality traits, EC is somewhat malleable (Roberts & Mroczek, 2008). While the life experiences that are likely to change EC have not yet been studied, it has nonetheless been demonstrated that EC can improve in response to specific EC training (see Kotsou et al., 2011 and Nelis et al., 2011).

See Also

Coping
Emotional Intelligence
Emotional Intelligence, Assessment of
Emotional Intelligence in the Workplace
Emotion Regulation and Psychopathology

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Entrepreneurship/Intrapreneurship, Personality Correlates of

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Conceptualization

Entrepreneurship is considered an individual or organizational level behavioral phenomenon. The entrepreneurship-specific domain incorporates the creation and management of new businesses, small businesses, and family businesses, as well as the characteristics and special problems of entrepreneurs. Entrepreneurs are people who start up new businesses and are important for new wealth creation and economic development. Emergence-related behavioral intentions and behaviors, such as organization formation and innovation, differentiate entrepreneurship from non-entrepreneurship, which refers more to the management of existing or customary activities. Intrapreneurship is entrepreneurship in existing organizations or defined as emergent behavioral intentions and behaviors that are related to departures from the customary ways of doing business in existing organizations. Intrapreneurial processes go on inside an existing firm, regardless of its size. Intrapreneurship refers not only to the creation of new business ventures, but to other innovative activities and orientations such as the development of new products, services, technologies, administrative techniques, strategies, and competitive postures. Its characteristic dimensions are new business venturing, product/service innovation, process innovation, self-renewal, risk-taking, proactiveness, and competitive aggressiveness.

Entrepreneurs are central to entrepreneurship. The entrepreneur as a person and their role in entrepreneurship has been studied from the viewpoint of the psychological nature of entrepreneurship from the 1960s on. The psychological view is based on research on personality characteristics which largely determine who will become an entrepreneur and who will not. The psychological or personality view of the entrepreneur as a person is based on the belief that entrepreneurs differ from non-entrepreneurs (other members of the population) by personality characteristics.

Personality Correlates of Entrepreneurship

The key personality correlates of entrepreneurship can be summarized in six groups of personality characteristics: (1) need for achievement; (2) internal locus of control; (3) need for independence; (4) risk-taking propensity; (5) entrepreneurial self-efficacy; (6) the Big Five personality factors.

The theory of the need for achievement (n Ach) describes the entrepreneur as a person who compared with other groups in the population has a greater need for achievement. In the background of these needs lies the entrepreneur's desire for recognition and enforcement. The strong need for achievement motivates individuals to begin with entrepreneurship. A person with a high need for achievement tends to look for new challenges and strives to achieve recognition of their company's success or achievements. The need for achievement can be regarded as a quality of successful people, not just entrepreneurs. The need for achievement can be found in successful people from different groups, such as entrepreneurs, managers, athletes, politicians, artists, scientists, etc. The need for achievement is therefore a characteristic of successful people, including entrepreneurs.

Internal locus of control is a psychological interpretation of the entrepreneur as an individual with a sense of control over their own actualization and life. People with an internal locus of control believe that the result of their actions or work depends solely on the ability and efforts they invest and to a minimum degree on luck or coincidence.

The need for independence is a personality characteristic considered one of the strongest internal driving forces of the entrepreneur. Entrepreneurs with this characteristic are people who find it difficult to adapt to the established system and have difficulty accepting authority over them; they want to play by their own rules and decide on an entrepreneurial path or start their own business. They have a desire to assume full responsibility for their own actions.

Risk-taking propensity is a feature that is very often attributed to entrepreneurs and entrepreneurship in general. Since the early definition in the eighteenth century, the entrepreneur has been regarded as someone who assumes the risk of their business activity. For a long time it was believed that a positive attitude to risk or risky decisions and activities (a risk-taking orientation) characterizes the entrepreneurial process as well as the key figures in this process – entrepreneurs. Nevertheless, research found that entrepreneurs are willing to accept moderate risk. Entrepreneurs often thoroughly examine the possible alternatives and go into business with moderate risk. Risk-taking propensity is also not a very stable characteristic, but may vary depending on the situation. For this reason, we cannot be very confident in claiming that risk-taking propensity is a distinguishing personal characteristic of entrepreneurs. We can say that risk taking is a characteristic of the entrepreneurial process but usually not of the entrepreneur as a person.

Entrepreneurial self-efficacy can be defined as a personal conviction about one's own possibilities of successfully implementing various business functions (management, marketing, finance, etc.). Entrepreneurial self-efficacy is the personal belief in one's own ability to effectively carry out different tasks and roles; these tasks and roles are from assorted functional areas of business: marketing, innovation, management, risk taking,

and financial control. Entrepreneurial self-efficacy may be considered a personality characteristic differentiating entrepreneurs and non-entrepreneurs and a feature distinguishing successful and less successful individuals.

The Big Five factors (OCEAN) are the crucial factors that describe the general personality of an individual as follows: (1) Openness, originality, open-mindedness; defined by traits that refer to, for example, artistic, insightful, intelligent, commonplace (reversed), narrow interests (reversed), shallow (reversed). (2) Conscientiousness, control, constraint; defined by traits that refer to, for instance, deliberate, efficient, precise, careless (reversed), frivolous (reversed), irresponsible (reversed). (3) Extraversion, energy, enthusiasm; defined by traits that refer to, for example, adventurous, assertive, dominant, sociable, quiet (reversed), reserved (reversed), retiring (reversed), shy (reversed). (4) Agreeableness, altruism, affection; defined by traits that refer to, for instance, co-operative, generous, sympathetic, cruel (reversed), quarrelsome (reversed), unfriendly (reversed). (5) Neuroticism, negative affectivity, nervousness; defined by traits that refer to, for example, anxious, self-pitying, temperamental, calm (reversed), contented (reversed), stable (reversed).

The Big Five personality factors may be important for the manifestation of entrepreneurship in terms of firm start-up activities and/or intentions. The Big Five personality traits can potentially be used for predicting entrepreneurial start-ups (openness) and entrepreneurial intentions (extraversion and agreeableness). The openness personality factor may be the most important of the five factors for differentiating real-life entrepreneurs from other people. People who score higher than other people in personality traits of openness (creative, imaginative, philosophical, intellectual, complex and deep) may have a greater probability of becoming entrepreneurs than other people. Two personality factors – extraversion and to some extent agreeableness – may also be important for entrepreneurship. People who have no intention of starting up their own firms – non-entrepreneurs – tend to score lower in extraversion (traits: e.g. talkative, bold, and energetic) and somewhat higher in agreeableness (traits: e.g. sympathetic, warm, kind, and co-operative) than other people.

Personality Correlates of Intrapreneurship and Venture Success

The personality correlates of entrepreneurship described above can also be relevant for intrapreneurship. However, there may be some differences between entrepreneurs and intrapreneurs since intrapreneurs act inside an existing organization, so they need to co-operative with managers and other collaborators in the organization and may have a less expressed need for independence than entrepreneurs. The relationship between entrepreneurs' personality and success includes two sets of personality traits: broad personality traits (the Big Five) and specific personality traits (need for achievement, risk-taking propensity, innovativeness, autonomy, locus of control, self-efficacy); broad (general) traits tend to be related to success with $r = 0.15$, while specific traits tend to be related to entrepreneurial success with $r = 0.23$. Intrapreneurship can be important for the performance of companies.

Future Directions in Research, Theory, and Methodology

Personality correlates of entrepreneurs need to be researched in cross-cultural comparative studies and in studies that include sociological elements, which may be related to the formation of the personality or behavior of individuals with entrepreneurial intentions and entrepreneurs and intrapreneurs. The personality differences between entrepreneurs and intrapreneurs also need to be investigated in greater detail in future research. Theoretical models need to be, on one hand, more comprehensive (with many different correlates) and, on the other hand, more detailed (with many sub-dimensions and facets in quantitative research, as well as with more in-depth explanations of phenomena in qualitative research).

See Also

Agreeableness
Big Five
Cognition and Personality
Conscientiousness
David McClelland
Extraversion
Extraversion, Personality Correlates of
Locus of Control
Locus of Control, Personality Correlates of
Motivation (Achievement, Affiliation, Power)
Neuroticism
Neuroticism, Personality Correlates of
Openness
Personality and Risk-Seeking
Risk Taking

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Evolutionary Theory and Personality Correlates of Mate Selection

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Evolutionary Theory and Personality Correlates of Mate Selection

The evolutionary perspective incorporates principles of evolutionary theory to account for expression of certain personality characteristics (Buss, 2008, 2015). According to the evolutionary perspective, certain personality characteristics appear as inherited tendencies because they seem to be an adaptive response to the two fundamental challenges of evolution – survival and reproductive success. In terms of survival, the personality characteristics associated with living longer include *conscientiousness*, as such individuals are more likely to engage in health-promoting behaviors and avoid risks, and *optimism*, as such individuals are more likely to have fewer symptoms and quicker recovery when dealing with medical concerns (Friedman & Martin, 2001; Tucker & Friedman, 1996). Negatively associated with longevity are the personality characteristics of the Hostile Type A personality, as such individuals are more likely to suppress their feeling of emotional distress (e.g. anger and distress) thereby creating a greater tendency to abuse tobacco, alcohol, and drugs (Friedman, Harley, & Tucker, 1994), and *neuroticism* (e.g. moody, unstable, and overly anxious). In terms of reproductive success, the evolutionary perspective emphasizes those personality characteristics associated with functional fertile individuals (FFI) – those for whom reproduction is possible but have low rates of reproductive success. Personality characteristics for females classified as high FFI include: harm avoidance (Fasino et al., 2002), resulting in less frequent sexual intercourse; low co-operativeness, creating difficulties with potential sexual partners; and higher scores on measures of depression and anxiety, resulting in negative emotions being associated with sexual activity. In comparison to males classified as high FFI, personality characteristics for males classified as low FFI (i.e. have a greater likelihood of reproduction) include self-confidence, extraversion, and social assertiveness (Hellhammer et al., 1985), suggesting such males create more opportunities for sexual intercourse by being better able to approach potential sexual partners (e.g. being more self-confident, outgoing, and bold).

Basic Processes

A strategic expression linked to survival and reproduction is that of sexual selection (Darwin 1859/1958). Sexual selection is the process by which an organism's characteristic features evolve to promote the possibility of successful mating. A basic assumption of this process is: "Traits that increase the probability of successful reproduction will tend to increase in frequency over time" (Kenrick, Sadalla, Groth, & Trost, 1990, p. 97). Sexual selection can be divided into two forms: epigamic selection (i.e. mate selection) and intrasexual competition (cf. Figueredo et al., 2005). Epigamic selection involves the expression and evolution of characteristics that favor their selection as mates, which increases the likelihood of mating opportunities and of passing their genes on to the next generation. For example, females of a particular species might prefer to mate with socially dominant males who display the most physical strength, while males may prefer to mate with females with soft, smooth, and clean skin and other physical features associated with good health. Intrasexual competition refers to interpersonal exchanges (e.g. forms of competition) between same-sex members of the species in which superior characteristics are demonstrated to prove that one member or another is a preferable mate and to increase its potential mating opportunities (Nettle, 2009). For example, males demonstrating the most strength and greatest ability to protect the females in their territory from other males will have more mating opportunities.

Thus, not only do epigamic selection and intrasexual competition work together, but natural selection and sexual selection also work together to increase the probability of survival and reproductive success.

Consensual Preferences in Personality Characteristics

Consensual preferences in personality characteristics are preferences shared by men and women. Overall, both men and women across a variety of countries reported the characteristics they wanted most in a partner included someone who is *kind* and *understanding* and *intelligent* (Buss, 1985, 1989).

In other research, Buss and Barnes (1986) found that *exciting personality* was also included with the traits of kind/understanding and intelligent. In creating a "top-ten list" of personality characteristics, they also noted that those 10 characteristics men and women most preferred in a partner included: *good companion*, *considerate*, *honest*, *affectionate*, *dependable*, *intelligent*, *kind*, *understanding*, *interesting to talk to*, and *loyal*.

It is apparent how having a mate with these characteristics would contribute to the likelihood of a successful relationship. In taking care of each other and in nurturing their offspring, the individuals in that relationship would promote reproductive success, passing along to the next generation those genes and personality characteristics that will maximize the survival of the species. In addition, although males and females both expressed a preference for a mate with both masculine (e.g. being active and instrumental) and feminine (e.g. nurturing and expressive) characteristics, the feminine characteristics were more important than the masculine ones (Green & Kenrick, 1994). Again, it is apparent how such feminine characteristics would be important to promoting a successful relationship

with a mate (e.g. expressing one's feelings) and the care of offspring (e.g. nurturing) in a manner consistent with the processes of sexual selection. Further investigation of personality correlates of mate preference examined the preferred personality characteristics individuals had for their ideal romantic partner for the personality characteristics of Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism included in the Big Five personality dimensions, along with the rating of their own personality characteristics for those same five dimensions (Figueredo, Sefcek, and Jones, 2006). The romantic ideal and self-ratings correlated .81 for Openness to Experience, .36 for Conscientiousness, .60 for Extraversion, .73 for Agreeableness, and .38 for Neuroticism. These results suggest that individuals prefer a romantic partner with personality characteristics similar to their own. In addition, when calculating a difference score between the romantic-ideal ratings and self-ratings, these scores indicated that individuals preferred that their romantic-ideal mate score significantly higher than themselves on Conscientiousness, Extraversion, and Agreeableness and lower than themselves on Neuroticism, with no difference being found for the Open to Experience dimension. Such a pattern of results suggest men and women both tend to want an ideal mate who is better than themselves on the positive characteristics – but not too much better, as evidenced by the correlations of similarity – and lower and somewhat different on the negative characteristics. It would seem apparent how having such an ideal romantic partner would make for an ideal relationship.

Gender-Specific Preferences in Personality Characteristics

Although males and females have consensual preferences in personality characteristics, certain gender-specific preferences exist as well (Buss & Barnes, 1986). More specifically, research investigating the preferred personal characteristics in potential mates reported that females ranked *considerate*, *honest*, *dependable*, *understanding*, *fond of children*, *well-liked by others*, *good earning capacity*, *ambitious and career orientated*, *good family background*, and *tall* higher than males. In contrast, males ranked *physically attractive*, *good looking*, *good cook*, and *frugal* higher than females. Such a pattern of results is consistent with earlier statements about mate preferences being related to survival and reproduction. For males, physically attractive mates are associated with health, reproductive success, and culinary ability; and frugality is associated with the ability to provide the domestic skills necessary to care for the family in a manner that places the fewest demands on the male – being a frugal cook eases demands on the male to provide food and other domestic resources. For females, ambitious and successful mates are associated with the ability to provide family necessities (e.g. food and shelter), while being kind, dependable, and fond of children are associated with the ability to provide care and protection for offspring and extended family. In support of such reasoning, additional research notes that the personality traits of dominance and agreeableness are related to females' perception that males scoring high on these two characteristic are more attractive (Jensen-Campbell, Graziano, & West, 1995: Sadalla, Kenrick, & Vershure, 1987) and wealthier (Jensen-Campbell et al., 1995). Such a pattern of results a consistent with the notion that dominant-agreeable males are able to provide the necessary material resources for the family while also being easy to get along with as mates and members of the greater community.

See Also

Agreeableness
Buss Evolutionary Psychology
Conscientiousness
David Buss
Evolutionary Theory of Personality
Extraversion
Neuroticism
Openness

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Eysenck Giant Three

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Eysenck's Model

One of several major competing models in the prolific area of personality taxonomy, Eysenck's psychobiological Giant Three (also known as the Big Three, or PEN) model specifies three cumulatively non-exhaustive higher-order personality dimensions, extraversion, neuroticism, and psychoticism, located at the third level of the hierarchical personality taxonomy (Hinshaw, Kotov, Gamez, Schmidt, & Watson, 2010). While the Giant Three do show considerable overlap with other personality models such as the Giant Five, Eysenck's model is unique in its explicit specification of the traits being psychobiological (i.e. the Giant Three are defined as being caused by underlying biological bases and mechanisms such as neurological behavioral activation systems), but was not intended to be cumulatively exhaustive (i.e. many other major personality factors are not included in the Giant Three). Originally, Eysenck's dimensions were conceptualized as independent of each other, but present research now shows that the traits conceptually overlap (Latzman, Vaidya, Malikina, Berg, & Lilienfeld, 2014). Specifically, meta-analytic findings indicate that neuroticism is moderately negatively correlated with extraversion and is positively correlated with psychoticism (Hinshaw et al., 2010).

This framework, the foundation of many subsequent, converging three-factor models, has been replicated cross-culturally across the world and shows considerable longitudinal stability (Hinshaw et al., 2010). Furthermore, the Giant Three demonstrate significant utility for predicting important behavioral and life outcomes across the lifespan, from adults (for whom it was originally developed) to children and youth. Specifically, meta-analyses indicate that this model's traits contribute substantially to academic performance, occupational attainment, divorce, life satisfaction, subjective well-being, physical illness, and longevity (Hinshaw et al., 2010).

Extraversion

Eysenck's extraversion (a.k.a. positive emotionality or emotional stability) is the behavioral tendency toward positive affect and to be energized by (i.e. draw pleasure from) external and interpersonal activity (compared to being energized by internal exploration). It is a robust, primary personality factor in the Giant Three (as well as most other major personality models) that is observed cross-culturally and is described in terms of sociability, liveliness, sensation-seeking, assertiveness, activeness, dominance/competitiveness, carefreeness, surgency, and venturesomeness (Jalili & Mall-Amiri, 2015; Saklofske, Eysenck, Eysenck, Stelmack, & Revelle, 2012). Conversely, Eysenck's extraversion is indicative of poorer listening, planning, long-term concentration, and individual autonomy (Thompson, 2012; Silverman, 2012). This is essentially equivalent to the Big Five conceptualization of extraversion, though Eysenck's extraversion is also moderately positively correlated with the Big Five's openness to experience trait (Hinshaw et al., 2010; Vaidya et al., 2010).

In terms of demographic differences, Giant Three traits show variation in their practical measurement as well as their conceptual content across cultures and between genders (Bowden, Saklofske, van de Vijver, Sudarshan, & Eysenck, 2016). For example, Greek researchers have observed that male postsecondary students generally display higher levels of extraversion compared to their female counterparts, though this effect's magnitude is small (Kokkinos, Panayiotou, Charalambous, Antoniadou, & Davazoglou, 2010). Technology researchers have shown that Giant Three extraversion in young adults and youth is generally associated with greater online social media use and online sensation-seeking behaviors such as sexual content use and online competitive gaming, and with reduced non-social media internet use. Educationally, researchers have also recently found evidence that more extraverted teachers can be more effective at class management. Conversely, Giant Three extraversion is also a strong predictor of general adult delinquency (Dunlop, Morrison, Koenig, & Silcox, 2012).

Psychopathologically, researchers have found that Eysenck's extraversion is uniformly negatively related to psychological disorders, with the extraversion–disorder associations being small, and sometimes even zero in magnitude. Extraversion is highly negatively related to dysthymic disorder, obsessive–compulsive disorder, and social phobia but is independent from other phobias (Hinshaw et al., 2010). As well, extraversion shows some negative relations to the desire for perfection, depression, and social anxiety beyond that accounted for by neuroticism (Silverman, 2012). Surprisingly, though Eysenck's extraversion is generally shown to be a positive correlate of psychopathological adjustment, some recent findings indicate that the high sociability and sensation-seeking tendencies of Eysenckian extraversion are also strongly indicative of depressant use (e.g. alcohol, drugs) and adult delinquency, respectively (Feldman, Boyer, Kumar, & Prout, 2011; Dunlop et al., 2012). Likewise, meta-analytic findings suggest that average levels of Giant Three extraversion are related to antisocial personality behaviors (Hinshaw et al., 2010).

Neuroticism

Eysenckian neuroticism, or negative emotionality, is characterized as feeling, anxious, tense, guilt, depressed, low self-esteem, irrational, shy, emotional, and moody. As well, like extraversion, Eysenck's neuroticism is also the same as the Big Five model's conceptualization

of neuroticism (Hinshaw et al., 2010). Typically, Eysenckian neuroticism is higher in women and is positively associated with overall mental illness/psychopathology and behavioral maladjustment, including both internalizing and externalizing disorder symptoms and anxiety (Hinshaw et al., 2010; Kokkinos et al., 2010). However, unlike extraversion, neuroticism's relation to substance use is mixed, with some researchers observing positive relations and others no relation (Feldman et al., 2011). Interestingly, despite its tendency toward anxiety, neuroticism coincides with increased social media internet use, specifically in women; researchers have suggested this may be a method for neurotic individuals to counter their elevated feelings of loneliness.

Psychoticism

The Giant Three's most unique factor, psychoticism – more accurately known as touch-mindedness or disinhibition (vs. constraint) – reflects individual differences in under-controlled, spontaneous behavior and is characterized by descriptors such as aggressive, egocentric, cold, impersonal, unempathic, careless, unconcerned, creative, impulsive, disorganized, vindictive, cruel, and antisocial. Functionally, psychoticism is a psychopathological continuum, ranging from normal through criminal and psychopathic maladjustment, though it does not appear to predict psychosis as was previously thought. Researchers suggest that impulsivity, sensation-seeking, and lack of socialization and perseverance lie at the heart of this trait (Latzman & Vaidya, 2013). Being negatively related to trait honesty and humility, psychoticism is also strongly predictive of adult delinquency, and displays moderate to strong correlations with externalizing disorders, substance abuse, low self-esteem and decision-making ability, antisocial personality, obsessive–compulsive disorder, and other psychiatric disorders (Dunlop et al., 2012; Hinshaw et al., 2010; Vaidya et al., 2010).

Socio-developmentally, work on psychoticism has revealed that young adolescent males appear to have higher levels of psychoticism relative to their female counterparts and psychoticism levels shift with age in as little as five years (Vaidya et al., 2010). Additionally, psychoticism is associated with reduced academic achievement, internet use, and intrinsic and extrinsic religiosity. Stress researchers also note that individuals high in psychoticism respond less to stress, with psychoticism negatively correlating with stress hormone (i.e. cortisol) activity after presentation with acute stressors; however, psychoticism is independent of an individual's average (baseline) cortisol level before such acute stress.

Unlike the ubiquitous scientific support garnered for extraversion and neuroticism, the construct of psychoticism remains a controversial construct. Specifically, contemporary researchers caution that psychoticism appears to be multidimensional, significantly conceptually overlapping (i.e. being highly negatively correlated) with the Big Five's diverse agreeableness, conscientiousness, and openness traits (in fact, 33% of variance in psychoticism is explainable by agreeableness and conscientiousness; Vaidya et al., 2010), as well as with facets of the HEXACO personality model's emotionality factor (a variation of neuroticism; Dunlop et al., 2012). In fact, psychoticism's underlying components display unique relations to the abovementioned psychopathologic disorders (Hinshaw et al., 2010; Latzman et al., 2014). More pragmatically, psychoticism measurement is flawed as the psychoticism subscales of most Giant Three self-report instruments show low reliability and

cross-cultural replicability. Therefore, conceptualizing psychoticism by its underlying facets is more advisable and meaningful for understanding the construct's underlying relations to mental health and behavior.

Giant Three Measurement

A variety of self-report instruments have been developed by researchers to measure Eysenck's traits around the world. Eysenck and colleagues' Giant Three framework measures, which include the Eysenck Personality Questionnaire (EPQ; Eysenck & Eysenck, 1964), its subsequent short-form versions (the EPQ-SF, Revised EPQ-SF, and the Reduced EPQ-RS), and the Maudsley Personality Inventory (MPI), consist of self-report questions for extraversion and neuroticism (EPQ measures and MPI), psychoticism (EPQ measures only), and a set of items to test for lying/dishonesty (EPQ and MPI measures). The most recent (1994) version of the EPQ, the EPQ-R Adult, which includes both short and long test versions, has also majorly revised the Psychoticism, Extraversion, and Neuroticism scale items to follow United States norms. Eysenck's measures (full and short versions) have been adapted to both other languages (e.g. Japanese, Italian, Spanish) and to children and youth (e.g. the junior-oriented JEPQ, JEPQ-R, and JEPQ-R Short tests).

Within Eysenck's framework, lying is conceptualized as being similar to social desirability (i.e. the tendency of individuals to respond to questions in ways they believe will make them appear more desirable to others and society in general; Kokkinos et al., 2010) and honesty. In fact, Eysenck's Lying subscale is highly positively correlated with the Honesty component of another major personality theory called HEXACO, and with risk of adult delinquency (Dunlop et al., 2012). Despite the importance of participant honesty in personality research that employs self-reporting methods, researchers have questioned the validity of Eysenck's Lying subscale, as it typically shows poor reliability overall and often fails to show sufficient validity or even basic replication across different cultures (Kokkinos et al., 2010). Comparatively, the Eysenckian measures' extraversion and neuroticism scales generally show strong cross-cultural replication and validity. Importantly, scores on measures of Eysenck's Giant Three are mostly independent of respondents' general intelligence.

See Also

Extraversion
Neuroticism

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Extraversion, Personality Correlates of

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Extraversion-introversion is the primary personality trait dimension in personality frameworks, from Eysenck's biologically-based three factors of personality to the five factor ("Big Five") taxonomy refined by Costa and McCrae to Lee and Ashton's six factor HEXACO model (Saklofske, Eysenck, Eysenck, Stelmack, & Revelle, 2012). Conceptualized as opposing poles along a single dimension, extraversion and introversion were seminally constructed by Swiss psychiatrist Carl Jung as distinct behavioral predispositions that are both normal and neutral in their adaptiveness. Extraversion is generally defined as the behavioral tendency to be bold and energized by high external activity and frequent interaction with other individuals, while introversion is the tendency to be energized by internal thoughts and personal exploration. Human research and animal models of introverted and extraverted behaviors support this construction, as both tendencies have been preserved in human populations, showing adaptive value in different environments. In mammalian species, introverted tendencies (e.g. quietness, caution) have been found to be more adaptive in changing or unstable environments – where sensitivity to stimuli is required – whereas extraverted tendencies (loudness and impulsivity) are more adaptive in stable environments, where sensitivity is not necessary. Therefore, for introversion and extraversion to be maximally adaptive and health-promoting, an individual's predisposition must complement their environment (see the work of eminent behavioral genetic and personality researcher Tom Bouchard; Frost et al., 2013).

Defining the Facets of Extraversion-Introversion

Despite its long history, the measurement of extraversion-introversion has recently been called into question due to problems in verifying the components (facets) that comprise the construct. Specifically, measures of extraversion-introversion differ in which facets are emphasized; sometimes extraversion-introversion is based more on assertiveness; sometimes energy and spontaneity; sometimes dominance, confidence, and agency; and

sometimes the tendency toward positive affect. Moreover, though high extraversion is often assumed to equate to sociability (the preference for social interaction), researchers have found that sociability is not a primary feature of extraversion, but rather the byproduct of other extraversion facets: social attention-seeking and pleasure from social interaction. In fact, the extraversion-introversion dimension has now been shown to be unrelated to the need for socializing and close relationships (Hofer, Busch, & Schneider, 2015).

Sensitivity to Stimuli and Arousal

Given its adaptiveness in unstable environments, introversion (low extraversion) is characterized by a heightened sensitivity to and processing of stimuli. Evolutionarily, there appears to be a large genetic effect involved in extraversion-introversion sensitivity predispositions. Highly extraverted and introverted individuals differ in brain cortex arousal, with highly introverted individuals displaying significantly greater baseline and post-stimulation cortical activity, particularly in the right brain hemisphere and vestibular and somatosensory brain regions (Schaefer, Heinze, & Rotte, 2012). Introversion is also positively related to brain-derived neurotrophic factor (BDNF) level, which promotes synaptic plasticity and neurotransmission in the brain. Interestingly, BDNF can interact with serotonin transmitters – the biological mechanism in the brain for generating positive affect and feelings of euphoria – in order to generate neurotic tendencies by suppressing serotonin (Terracciano et al., 2010). Facial recognition research also indicates that introversion promotes neurologic sensitivity to human facial expression when introversion is measured implicitly rather than through self-reporting. This supports Eysenck's theory that neurobiology is the primary underlying factor of variation in extraversion-introversion.

Interestingly, the extraversion side of extraversion-introversion does display a unique sensitivity to some specific stimuli; extraversion promotes sensitivity to reward stimuli – and insensitivity to punishment stimuli – as well as sensitivity in the brain's general approach system, encouraging approach behaviors. Approach behaviors are further reinforced by high extraversion's positive relations to thrill-seeking and need for stimulation, which is not shared by the introversion pole due to its pre-existing sensitivity.

Aggression, Dominance, and Sexuality

Though extraversion is a strong positive factor for a diversity of physical and psychological health concerns, it also possesses risks for a number of negative health effects. Specifically, extraversion is positively related to heightened testosterone, aggression, and social dominance. Subsequently, extraversion – particularly its assertiveness, sociability, and sensation-seeking facets – is a risk factor for several externalizing health problems such as hostility/anger, conduct and substance-use disorders, gambling, antisocial personality, and psychopathy (Mezquita et al., 2015). Extraversion also shows a modest relation to bipolar disorder. Interestingly, dominance through extraversion is supported by body type as well as testosterone levels, as current research indicates that more inhibited children typically grow up to adulthood with ectomorphic bodies and lower body mass indices compared to children with more extraverted tendencies, who possess a more mesomorphic physique.

Owing to the positive relations between extraversion and social aggression and androgen levels – and larger, more muscular bodies – extraversion also promotes sexual activity opportunity. More extraverted individuals show higher than average levels of sexual function and desire, as well as greater emphasis on sexual activity compared to introverted individuals, who demonstrate average sexual desire levels (Papageorgiou et al., 2012).

Positive Affect, Negative Affect, and Stress

Positive affect is a key characteristic of the extraversion pole of the extraversion-introversion dimension (Saklofske et al., 2012); along with other facets of extraversion – sociability/pleasure and assertiveness – it is negatively correlated with several internalizing problems, such as social anxiety, negative mood, long-term social dysfunction/phobia, and schizotypy (Watson, Naragon-Gainey, Watson, & Markon, 2009). Additionally, extraversion is positively related to adaptive coping strategies (e.g. problem-oriented coping, social support) to reduce the negative impacts of stress. Response to fear for high extraversion follows one of two affect patterns: rapid management of fear, if the individual places self-concept emphasis on being warm and active, or fear retention, if the individual emphasizes simple positive emotion and excitement-seeking (Pineles, Vogt, & Orr, 2009).

While introversion is positively associated with neuroticism, this is in part due to the dichotomization of introversion and extraversion along a single continuum (if high extraversion is negatively related with neuroticism, then high introversion must be positively related). Contemporary researchers note that definition matters, as the underlying preference for social interaction itself (not the derivation of pleasure from it) is not reliably related to morbidities, and need for social interaction is not related to extraversion-introversion at all. Therefore, researchers hold that introversion enhances pre-existing neurotic tendencies rather than creates them (see personality processes).

With this in mind, current research indicates that introversion – conflated with neuroticism – possesses moderate relations to social anxiety, negative mood, depression (when relation to neuroticism is not controlled for), self-blaming, and shame. Introversion is not significantly related to general anxiety, however. In terms of stress, introversion is related to greater vocal handicapping (inability to speak) following stress, though there is no relation to post-stress effort to vocalize. Similarly, individuals with more introverted tendencies require greater home-workplace separation to isolate work stress and achieve the same normal health functioning level as individuals with more extraverted tendencies (Baer, Jenkins, & Barber, 2016). Moreover, introversion appears to increase maladaptive coping strategy use, though this relation may be from conflated neuroticism (further work to determine this is required). Therefore, explicit definitional boundaries distinguishing extraversion-introversion and neuroticism are necessary to improve understanding of positive and negative affect relations.

Social Networks and Support

Though the need for and general appreciation of social interaction itself do not differ across the extraversion-introversion dimension (Hofer et al., 2015), the enhanced pleasure derived from it by more extraverted individuals – as well as the approach

behavior system and confidence – means extraversion thrives through social networks. Extraverted tendencies promote frequent interaction, leading networks to be overpopulated with highly extraverted individuals, disproportionate to the ratio of highly extraverted individuals in the general population. Additionally, due to a high extraversion presence network members are pushed toward inflating their own perceived extraversion level. Interestingly, extraversion is positively related to the tendency to self-present as more extraverted. This can be explained in part by the fact that while most individuals generally enjoy behaving in an extraverted manner in social situations, highly introverted individuals tend to perceive acting more extraverted as being draining and less beneficial than highly extraverted individuals (Zelenski, Santoro, & Whelan, 2012). Therefore, individuals within social networks usually possess a milder degree of extraverted tendency overall than is apparent during network interactions.

Dynamically, individual network research indicates that extraversion encourages large, homophilic (socially-similar) networks while introversion promotes small heterophilic networks. Additionally, high introversion results in qualitatively different kinds of friendships from high extraversion; extraversion emphasizes adventure, energy, power, talking, and relationship propulsion while introversion prioritizes stability and listening. Extraversion-introversion does not influence relationship closeness, though introverted tendencies do promote more gradual development of friendships.

Stability of Predisposition Over Time

While extraversion-introversion is a core personality trait, personality researchers have already shown that even very stable traits change over time, sometimes rapidly (see the work of eminent personality researcher Brent Roberts). Unsurprisingly, individuals typically show great variation in their extraversion-introversion tendency across their lifespan: individuals shift their state – hovering around their primary extraversion-introversion trait level – to suit situations. For example, extraversion level is negatively associated with age such that, in general, older individuals are less extraverted. Additionally, careers where heavy networking is required can encourage development of more extraverted tendencies (Lieneck & Nowicki, 2015).

Extraversion-Introversion: A Defining Factor

As the principal factor of personality, extraversion-introversion helps to define individuals' strengths, motivations, social preferences and behaviors, and health needs and risks. Analysis of particular facets of extraversion is generally recommended for understanding specific social behaviors – bypassing any facet emphasis problems of general extraversion-introversion measures – but the overall dimension provides a meaningful, biologically-driven explanation of social behavioral patterns across the lifespan.

See Also

Anxiety
Coping
Health and Personality
Neuroticism

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Flow

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Flow, or optimal experience, is a highly complex and positive condition characterized by specific features at the cognitive, motivational, and emotional levels. As concerns cognition, flow includes intense and focused concentration, deep involvement, feeling of oneness with the ongoing task, and perceived control of the situation; at the motivational level, it comprises clear goals and autonomous behavior regulation that may reach the extreme pole of intrinsic motivation; affective features include loss of reflective self-consciousness and a global feeling of well-being. Flow-related activities are characterized by clear rules and structure, that allow individuals to retrieve clear feedback on the quality of their performance during the activity (Csikszentmihalyi, 1975/2000). The crucial antecedent of flow is the perception of high challenges in the ongoing activity, balanced with the perception of adequate skills to face them.

Studies conducted with both single administration instruments and real-time sampling procedures such as the Experience Sampling Method (ESM) repeatedly confirmed the experiential structure of flow and its global positivity, when compared with other experiences arising during daily life in relation to different combinations of perceived challenges and skills. This issue was specifically explored through the Experience Fluctuation Model (EFM; Massimini, Csikszentmihalyi, & Carli, 1987), designed to analyze the fluctuation pattern of daily experiences emerging from ESM data. In the model, the Cartesian plane is divided into eight channels, each representing a well-defined range of challenges/skills ratios, and corresponding to a specific experience. *Flow* is associated with the perception of moderate to high levels of both challenges and skills. When perceived skills exceed challenges, *relaxation* follows. Conversely, when perceived challenges exceed personal skills, *anxiety* is reported. The condition in which low values of both challenges and skills are perceived gives rise to the experience of *apathy*.

The intrinsic reward derived from the deep concentration, absorption and self-forgetfulness characterizing flow fosters the preferential replication of the associated activities. This process of long-term investment of personal resources on a specific subset of activities

among those available to individuals in their daily social context was defined as psychological selection (Massimini & Delle Fave, 2000). Two major dimensions orient this dynamic process. The first one is related to the activity potential for complexity. As people develop progressively higher skills through repeated activity performance, in order to continue experiencing flow they must engage in gradually higher challenges, otherwise boredom could arise. The search for ever increasing challenges and the related skill refinement generate a virtuous cycle that promotes progressive learning and personal growth, supporting individuals' active building of their own life trajectory. The second dimension orienting psychological selection is the meaning and relevance of flow-related activities for the person and the social context, in the light of the values and priorities endorsed by individuals and their culture. In order for flow activities and psychological selection to promote authentic personal growth, they should favor both increasing skill complexity and meaning-making. While simple tasks are structurally inadequate to promote skill enhancement, highly structured tasks devoid of adaptive meaning (as often happens with attention-consuming but futile leisure, or antisocial activities such as pickpocketing) may indeed facilitate flow, but they do not promote adaptive growth and complexity (Nakamura & Csikszentmihalyi, 2009).

The Phenomenology of Flow in Daily Life

Several studies showed that people across the most diverse cultures, health and socio-economic conditions, life stages, and occupations report flow in their life and describe it as a positive and rewarding experience. However, investigation of the psychological features of flow with ESM across samples and activities showed that, while cognitive components represent a stable core of this experience, affective and motivational ones vary across activities. Specifically, productive activities such as work and studying are associated with lower values of positive affect and self-determination, while perceived goals are above-average. The reversed pattern, with higher positive affect, intrinsic motivation, and below-average goals, usually characterizes structured leisure activities, such as sports or hobbies (Delle Fave & Massimini, 2005). These findings suggest the existence of a "family" of optimal experiences, whose emotional and motivational features vary depending on the associated activities.

Individual Factors Promoting Flow

While demographic variables such as gender, age, culture, education, socio-economic status, and health conditions have little impact on the individual potential to attain flow and on the psychological features of this experience, they do influence the frequency of flow occurrence and the typology of associated activities. For example, women associate flow with social interactions more frequently than men, who instead more often refer to sports. Biological dispositions and talents in specific domains were found to support both flow retrieval in these domains during adolescence, and academic and professional investment them in the long term. Acquired physical impairments leading to disability were shown to restrain access to previously practiced flow

activities, at the same time highlighting the human ability to identify new flow activities compatible with the disability condition.

Researchers have also investigated the relationship between flow and personality. Csikszentmihalyi described the *autotelic personality* as a constellation of specific psychological features that make some people more prone to experience flow. Autotelic people engage in activities for their own sake, rather than to achieve some external goal, and they actively seek environmental challenges that are adequate to their skills. They possess further "meta-skills" including curiosity and interest, persistence, and low self-centeredness. In a study conducted among Japanese college students (Asakawa, 2010), autotelic participants reported better quality of daily experience, higher sense of fulfillment and satisfaction with life, higher self-esteem, lower anxiety and more active coping strategies than the other students. A specific measure of autotelic personality, based on Csikzentmihalyi's conceptualization, was recently developed and validated (Tse et al., 2018).

Researchers have also investigated which personality traits among the Big Five factors are associated with proneness to experience particularly intense levels of flow (Ross & Keiser, 2014; Ullen et al., 2012), finding that high-intensity flow was positively associated with conscientiousness and negatively with neuroticism. Other studies instead measured the relationship between personality traits and the occurrence of flow. Only openness to experience was a significant predictor of flow onset (Bassi, Steca, Monzani, Greco, & Delle Fave, 2014). Taken together, these findings are consistent with the distinction between receptive and active qualities proposed by Cskszentmihalyi as regards personality traits associated with flow. Openness to experience, a receptive quality related to curiosity and susceptibility to new challenges, fosters the identification of flow opportunities. Active qualities such as low neuroticism and high conscientiousness support the duration and intensity of flow after its onset. While emotional instability, negative affect, and high self-consciousness characterizing neuroticism may interfere with the flow experience, the control, self-discipline, and willpower characterizing conscientiousness foster concentration and deliberate engagement in flow-related tasks. No relationship was detected between personality factors and typology of flow activities individuals preferentially engage in.

In addition to personality dimensions, other trait-like factors were examined in relation to flow. Positive associations were detected between flow and self-esteem, optimism, self-efficacy beliefs, achievement orientation, intrinsic motivation orientation, internal locus of control and, as previously described, meaning attributions.

Social and Cultural Factors Related to Flow

Beyond personal characteristics, differences related to social and cultural features may influence the frequency of flow experiences as well as the variety and typology of related activities. As a macro environment characterized by specific norms, values, and habits, culture orients the process of psychological selection. Contexts favoring an individual's autonomy and ability to exert concentration have greater potential to foster flow retrieval in daily life and long-term commitment to related activities. In addition, different cultures promote selective resource investment in different life domains and activity types, based on their values, structure, and organization. At the meso-level of institutions, the work context may promote or prevent

flow onset. In industrial and post-industrial societies a wide range of occupations are characterized by high automation and repetitive tasks, low in meaning and complexity and thus failing to provide challenges adequately high to support flow onset. Workers enrolled in these jobs prominently retrieve flow in leisure or social relationships. Conversely, work contexts offering employment opportunities in more autonomous, self-expressive, and challenging work tasks, including arts, science, helping professions as well as traditional jobs and crafts that were recently rediscovered in Western countries, providing individuals with high challenges and complexity that altogether favor flow. At the micro-environmental level, the family influences individuals' selective engagement in flow-related activities (Rathunde, 2001). Parents can foster children's positive development by exposing them to meaningful and structured activities in which they can invest attention and refine skills, and by providing them with challenging objectives as well as adequate support toward their achievement. In addition, parents' self-efficacy beliefs and self-determination levels concur in promoting children's exposure to and cultivation of flow activities. Overall, the quality of family interaction patterns may foster or hinder all family members' potential for experiencing flow.

Future Directions

Despite researchers' efforts, flow proneness is still an unclear construct, requiring further conceptual and empirical investigation. Moreover, since the vast majority of people around the world report flow experiences regardless of their personality features, flow antecedents seem to extend beyond personality, including family, social, and cultural factors. These factors contribute to the selection and transmission of activities high in flow potential, and to the shaping of a supportive and challenging environment in which flow is more likely to occur.

See Also

Cognitive-Behavioral and Cognitive–Self-report Assessment Techniques
Creativity
Goals and Motives
Milhaly Csikszentmihalyi
Personality and Well-Being
Personality and Positive Psychology
Self-Determination Theory

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Gender Differences in Aggression

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Different Types of Aggression

At its most general level, aggression consists of behavior intended to harm someone else, and violence consists of aggression intended to cause extreme harm. Aggression can occur in reaction to provocation or it can be premeditated. Aggressive behavior can also be categorized as either direct or indirect. Direct aggression includes verbal, physical, and sexual actions perpetrated overtly and directly with the victim present. Indirect aggression, on the other hand, consists of covert and sometimes more subtle actions perpetrated often without face-to-face contact, thus permitting the offender to remain anonymous. Indirect aggression includes actions such as spreading rumors, damaging property, or social ostracism. Relational aggression is a specific type of indirect aggression that involves damaging peer relationships. With the advent of social networking, indirect aggression has increased dramatically and captured the attention of researchers. Males and females often differ in the types of aggression that they are more likely to use.

Gender Differences Throughout Developmental Stages

Throughout the lifespan, males are more likely than females to engage in physically aggressive or violent behavior, and they are also more likely to be the victims of such actions. An extensive longitudinal research program by R. Tremblay and colleagues (e.g. Baillargeon et al., 2007) has revealed that males show a higher level of physical aggression than females do. This begins in the second year of life with behaviors such as grabbing toys from another child, followed by hitting another child later on. Physical aggression tends to peak from the age of two to four, but while most children learn not to use physical aggressive behavior by that stage, a small proportion of children, mainly boys, develop severe forms of aggression.

Severe physical aggression is mostly perpetrated by men and often emerges in adolescence, peaks in the late teens or early twenties and begins to decrease in the mid or late twenties

(Archer, 2004). Almost all cases of sexual assault and rape are perpetrated by men, and females are more likely than males to be the victims. Gender differences in verbal aggression are less prominent than with physical aggression, and the research has been inconsistent, finding minor differences in both directions.

The transition from direct aggression to indirect aggression is common among both boys and girls, but the trajectories are somewhat different. Females use more indirect forms of aggression than males do, beginning just before the school years. This difference widens in adolescence and then narrows and disappears in early adulthood.

Among heterosexual couples, men and women report engaging in physical aggression with equal frequency but men are more likely to injure their partner by beating, choking, or strangling them. Women are more likely to use retaliatory aggression than to initiate aggression. A typical feature of aggression in intimate relationships is its repetitiveness because the environment often remains relatively stable (i.e. one's home). Research has shown an important connection between aggression in intimate relationships and heavy alcohol consumption.

Male-to-Male vs. Male-to-Female Aggression: The Barroom Setting as an Example

The social context and the nature of the conflict influence gender differences in aggression. One interesting setting is the barroom where physical aggression tends to occur between males and aggression of a sexual nature is used by men on women. In both cases, alcohol can play an important role for both perpetrators and victims, exacerbating the aggression and likelihood of negative consequences. Much of the research on aggression in bars comes from extensive observation research by Graham and colleagues (e.g. Graham et al., 2013). That research has revealed that men are likely to be the initiators of aggressive sexual overtures and intimidation, whereas women mostly react to provocation, such as resisting aggressively and expressing anger with body language. The aggression that occurs between men in bars has been linked to the need to maintain a macho image and competition for women.

The Role of Provocation

Aggression often occurs in reaction to some form of provocation but males and females differ in what will provoke them to retaliate. For example, among heterosexual couples, men are provoked more by sexual infidelity while women are provoked more by emotional infidelity. A classic meta-analysis by Bettencourt and Miller (1996) revealed that with the introduction of provocation, females were just as likely as males to act aggressively. However, in situations where women feared retaliation, they were less likely to engage in aggression. In general, males do not necessarily require much provocation to engage in physical aggression with strangers, whereas women are much more cautious and sensitive to danger, especially when the opponent is a physically threatening stranger. Men are higher risk takers and may feel they have more to lose than women do in terms of maintaining a specific identity of toughness, especially in the presence of their friends.

Attitudes and Beliefs About Aggression

One way of explaining the strong gender differences in aggression is to look at the differences in how men and women think about aggressive behavior. One supported theory is that women hold an "expressive social representation" that aggression is a loss of self-control, whereas males hold an "instrumental representation" that aggression is a means of imposing control over others (Campbell & Muncer, 1994). This said, both men and women find violence against women less morally acceptable than violence against men. Males can often see positive instrumental consequences of their aggression when it is used to protect their honor and masculine image. However, masculinity itself is a complicated and changeable aspect that often varies across time, culture, class, and race. Historically, masculinity has been linked to violence, often an excusable and even expected reaction to threats to one's honor. Yet, even though the idea that violence is a necessity of masculinity has waned over recent times (beginning in the Victorian era when a gentleman was expected to preserve self-control, violence being an action for working class men), the legacy of aggression as a central trait of masculinity still lingers today (Whitlock, 2014).

Evolutionary and Biological Explanations of the Gender Differences

The higher rate and severity of physical aggression among males may have resulted over evolutionary history, which has produced different sexual reproduction strategies for males and females. Sexual selection is a process in which males compete for mating privileges, whereas females choose between potential mates. Variation in reproductive success is much greater for males than for females, with a relatively select group of stronger males having greater access to mating. Hence, males engage in greater and more dangerous competition (i.e. male-to-male aggression and violence) than females out of reproductive necessity. In terms of reproductive success, females make a stronger parental investment with a nine-month gestation period and subsequent care and nursing, whereas males' reproductive success depends on mating with as many females as possible. Furthermore, while a female can have no doubt that she is the mother of her child, the best way for a male to ensure reproductive success is to have a high insemination rate. Evolutionary psychologists test these hypotheses by investigating such things as gender differences in preferences for more partners in contemporary society. The evidence tends to be mixed.

Another way to explain greater aggression in males is to look at biological factors that influence aggressive behavior. There has been considerable research on the moderating role of testosterone in gender differences of aggression but no clear pattern has emerged. Research on specific genes and neurotransmitters has been linked to aggression but again this research is limited. One common biological trait that has been associated with antisocial behavior is low autonomic arousal, a feature which is more common in males as they have a lower resting heart rate.

Social Role, Learning, and Socialization

Social role theory proposes that differences in size and physical strength between men and women and women's capacity to bear children have historically contributed to different positions in labor and society (see Eagly & Steffen, 1986). As a result, men have held more positions of power and status, and this has led to more dominant behavior by men. Traditionally, men have been more likely to adopt roles in the military and high status competitive positions, while women have cared for children or adopted caring and nurturance dominated jobs such as nursing and teaching. These different roles reinforced attitudes of power and can further influence aggressive attitudes and behaviors.

Social learning theory suggests that aggression can be learned by direct experience or through observation and can be transmitted through various modes from one generation to the next, through peers, through the media, and more generally through cultural values. Boys are socialized to be tough and to defend themselves physically, whereas girls are taught to keep out of harm's way. The widespread violent entertainment media can support and propagate these gender roles. The role of violent media in aggression has been studied extensively and the evidence does suggest an effect.

Males tend to be exposed to more environmental risk factors that lead to antisocial and physically aggressive behavior. For example, they are more likely to have peers who participate in antisocial behavior and are more likely to receive harsher physical punishment from parents. Throughout the lifespan, the differences that males and females experience in their personal relationships may also be influential. For example, parents often monitor their daughters more closely than their sons which might cause girls to be more likely to inhibit aggressive behavior.

Directions for Future Research

Studying gender differences in aggression provides some clues for improving gender specific prevention and intervention programs. The contemporary example of cyber bullying reminds us that as society evolves, psychological individual differences manifest themselves in new ways and therefore require a continual research commitment. There has been some research into the link between gender differences in aggression and in neurodevelopment, specifically interhemispheric communication and brain maturation as expressed with earlier cognitive and learning deficits in boys. This is an area that will no doubt develop further with advances in school psychology and cognitive neuroscience.

See Also

Anger
Anger and Hostility, Assessment of
Aggression, Personality Correlates of
Hostility, Personality Correlates of
Impulsivity
Self-control

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Gender Differences in Perceived Traits of Men and Women

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An abundance of literature and empirical research has investigated the presence of personality traits and the main factors on which comparisons between individuals can be made. That is, personality is often conceptualized as the degree to which an individual portrays particular traits, with traits being defined as consistently exhibited patterns of thoughts, feelings, motives and behaviors that are displayed across contexts (Weisberg, DeYoung, & Hirsh, 2011). Through extensive factor analyses over varied studies and research methodologies comprising all potential descriptive adjectives pertaining to one's personality, the widely known and employed Five Factor Model (FFM) or Big Five has been identified and enabled an overarching, hierarchical framework on which previous findings may be mapped and compared. Specifically, the broad five factors comprise Extraversion, Openness to Experience, Agreeableness, Conscientiousness and Neuroticism, and each of these comprehensive factors exhibits a number of more specific facets (please see Gosling, Rentfrow, & Swann Jr., 2003 for a detailed presentation of the underlying facets). Gender differences in personality, perceived personality, and stereotypes, therefore, generally describe the relative standing of each gender on these factors and facets, on average. Nevertheless, while an abundance of literature has only indicated small to moderate gender differences in the Big Five factors, the amount of research into gender differences on the underlying facets, and even more so on the perceived gender differences in personality, is far less pervasive. The current entry will outline the perceived gender differences in traits of men and women and the variations in gender stereotypes, followed by those that are empirically found across cultures, ages, ethnicity, and assessment methods, and an explanation of the most prevailing theories employed to describe the patterns of results obtained.

Self-Report and Observer Ratings of Men's and Women's Personalities

In general, women tend to score higher on neuroticism and agreeableness than men. They also tend to score higher than men on conscientiousness, openness, and extraversion, however, these differences tend to be smaller and are inconsistently evidenced across studies, which may reflect the more gender disparate effects at the facet level (Löckenhoff et al., 2014). Weisberg et al. (2011) suggest that one way of synthesizing the extent of analyses required to run a full facet level approach to revealing gender differences in personality is to view the two aspects that have been found to underlie each factor. Specifically, each Big Five factor comprises two correlated yet discrete aspects that provide a description of personality below the factor level yet above that of the facets. Gender differences on each broad factor and their underlying aspects and facets will be discussed briefly, in turn, below.

Neuroticism

Embodies the tendency to experience negative emotions such as anxiety, anger, self-consciousness, emotional lability and depression and to exhibit a low tolerance of stress and aversive stimuli. In general, women tend to score higher on all facets of neuroticism, however, men often score higher on the order facet anger, the expression of which is also more commonly considered acceptable when displayed by men. The two aspects of neuroticism are withdrawal and volatility. Women tend to score higher on both, until the shared variance between the two is canceled out through assessing gender differences in the regression residual values. Specifically, when the withdrawal is held constant, there is no significant difference in volatility between the genders, whereas, when volatility is held statistically constant, the mean score for women remains, on average, statistically greater than that of men. This pattern of results may be seen as while women tend to score higher on anxiety, vulnerability, depression, and self-consciousness, which are facets that incorporate the aspect of withdrawal, volatility describes the tendency to easily display acts of anger and irritability, which are more common in men.

Agreeableness

This trait reflects the degree to which one seeks to find and exhibit harmony with others. It includes traits such as altruism, kindness, co-operation, empathy, tender mindedness and consideration of others. Women tend to score higher on the overall factor and all facets of agreeableness, including the two aspects compassion and politeness. Gender differences on this factor may reflect differences in self-construal, women tending toward a more interdependent self-construal and males a more independent sense of self; that is, women may be more motivated to display and maintain social and emotional bonds with others than men.

Conscientiousness

Conscientiousness describes the degree to which one acts dutifully and shows self-discipline, self-control, rule following, and motivation to strive for achievement and goal attainment despite any potential extraneous stressors. While some studies have evidenced small

significant differences, with women tending to score higher than men on conscientiousness, this result has been inconsistently found given the disparate gender differences displayed on the facet and aspect level. In particular, conscientiousness may be divided into the two more specific aspects of orderliness and industriousness, with women often scoring higher on the former and men the latter, especially when the effects of the other aspect are canceled out through regressing one onto the other.

Extraversion

Extraverts frequently enjoy the company of other people, being the life of the party and also tend to be assertive. Gender differences at the factor level tend to display a rather small effect size, with women tending to exhibit greater extraversion overall than men. This small effect size and the inconsistency in previous results may be due to the discrete gender differences that are apparent at the facet level of personality; women tend to score higher on gregariousness, warmth and positivity and men on excitement seeking and assertiveness. Furthermore, the variation in the size and significance of gender differences in extraversion may also be explained in terms of the underlying aspects, enthusiasm and assertiveness. Women generally score higher on the traits of enthusiasm (i.e. sociability, experience of positive emotions, and gregariousness), whereas men commonly score higher on the facets associated with assertiveness (i.e. excitement seeking, agency, and dominance).

Openness

People who score high on openness tend to display a general appreciation of art, emotion, adventure, imagination, creativity, curiosity and being open to new and varied experiences. Broadly this factor also reflects the ability and interest in attending to and processing complex stimuli; that is, people who are open to experience tend to be intellectually curious. While significant gender differences are not commonly found on this factor, several studies have evidenced small differences, with women tending to score higher than men. These disparate findings are likely reflective of the divergent facets that underlie this concept. Specifically, women tend to score higher on the feelings and esthetics based facets, whereas men commonly achieve greater scores on the openness to ideas facet. This proposition is supported by analyses at the aspect level, with women scoring higher on openness and men on intellect.

Perceived Gender Differences and Gender Stereotypes

Much less research has been conducted into the degree to which gender stereotypes and perceived gender differences mirror the aforementioned findings of gender differences in the Big Five. This is particularly important as gender stereotypes tend to be highly prescriptive; that is, they denote the behaviors and traits that are expected be displayed by women and men, individually (Prentice & Carranza, 2002). Men tend to be perceived as higher on agentic and instrumental traits, while women are commonly perceived as presenting higher degrees of nurturing and communal traits. Nevertheless, findings tend to be fairly

inconsistent, with some indicating that women are perceived as scoring higher on agreeableness and neuroticism, yet lower on extraversion, conscientiousness, and openness. These findings are somewhat contradictory to the abovementioned gender differences that are reported through self-report and observer ratings. Conversely, others have reported that women tend to be perceived as scoring higher on agreeableness, conscientiousness, and openness than men, yet similar to them on extraversion and neuroticism. Similarly, Löckenhoff et al. (2014) reported that women were rated higher on all Big Five factors, except extraversion, with this effect being most pronounced for agreeableness. Furthermore, while investigations at the facet level were consistent with those at the factor level for agreeableness, openness, and conscientiousness, ratings at the facet level were more mixed for neuroticism and extraversion. With regard to extraversion, women were rated higher than men on warmth and positive emotions and lower on excitement seeking and positive emotions; the remaining facets were rated as fairly equally prevalent in both genders. Moreover, women were rated as higher on the neuroticism facets of anxiety and vulnerability and lower on impulsiveness than men. These findings were also rather consistent with the self and other ratings of actual gender differences evidenced in this study. Further research needs to be conducted into assessing the perceived gender differences on the Big Five factors and the underlying aspects and facets of these factors, as well as the degree to which they map onto the empirically derived gender differences.

Theoretical Models and Consistency across Cultures, Ages, Ethnicity, and Testing Methodology

Several general theories have been proposed to explain the gender effects seen regarding personality and perceived differences across personalities. The biological theory proposes that women and men exhibit different personalities due to their innate differences and tendencies toward caring for young and successfully gathering resources (evolutionarily and biologically the role given to females) versus becoming strong, protective hunters (consistent with the traditional role and characteristics of males). Specifically, biological theories suggest that gender differences in personality arise through innate, evolved differences between men and women. Further biological theories have postulated that hormonal differences may play a role in the differences found between genders in personality.

Conversely, social role theories suggest that such differences arise due to different roles that women and men play in society, being aligned with those they are expected to exhibit. Alternative, sociocultural theories have focused on the artifacts of testing (i.e. participants report higher levels of the traits that are seen as more socially desirable for their gender) and the effect of frame of reference (whether people rate themselves relative to all individuals or only those within the same gender).

Gender differences in self and other rated personality traits and perceived gender differences in personality have been found to be consistent across most cultures, age groups, and ethnicity. Nevertheless, these differences appear to be of lesser magnitude in Eastern cultures, than Western cultures, which may partially discredit the social role theory, as it is expected that Eastern cultures would show more traditional social roles and hence greater differences in the perceived and actual differences in personality across genders.

Nonetheless, it may be argued that a combination of biological and social role theories is responsible for these findings. Specifically, sociocultural differences (e.g. gender stereotyping, gender equality, and socio-economic contexts) may mediate the effect of social roles. Furthermore, the pervasive nature of gender differences is in line with biological theories, yet this theory is unable to explain the existence of varied magnitudes across cultures. However, it is important to note that previous findings may reflect socially desirable responding, as testing methodology has been found to significantly mediate the responses participants provide. Specifically, males and females both tend to rate themselves more positively when completing paper-and-pencil questionnaires in laboratory settings, yet less favorably when doing so online, which is hence expected to provide participants with a greater sense of anonymity and security (Feingold, 1994). Taken together, the findings to date therefore suggest that a biosocial model may best explain previous findings, however, future research should be conducted to further delineate the exact role that each of the bases for various theories plays in the actual and perceived presence of differences in personality across genders.

See Also

Androgyny, Expression of
Gene-Environment Interaction

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Gender Differences in Self-esteem and Self-confidence

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Definition of Self-esteem and Self-confidence

Self-esteem has held a central place in the scholarly and popular understanding of the human being since the last decades of the nineteenth century. Social scientists have defined self-esteem in at least three different ways, each of which has stimulated meaningful research and given rise to entire schools of thought on the topic over time.

The first definition was crafted by William James (1890), who described self-esteem as a ratio or relationship between one's own achievements and one's own aspirations by saying "Our self-feeling in this world depends entirely on what we back ourselves to be and do. It is determined by the ratio of our actualities to our supposed potentialities, a fraction of which our pretentions are the denominator and the numerator our success" (p. 296). Works that stem from James's definition tend to focus on behavioral outcomes and the discrepancies between one's ideal self and the real self. Stressing a certain type of behavior rather than affect, attitude, or belief, and arguing that people draw self-esteem from accomplishments in certain areas, leads, as a result, to an overlap between the construct of self-esteem and that of self-confidence.

A different definition of self-esteem has been given by Morris Rosenberg, who said "self-esteem, as noted, is a positive or negative attitude toward a particular object, namely, the self" (1965, p. 60). Such an attitude is thought to be based on the perception of a feeling about one's "worth" or value as a person. Whereas James's definition defines the construct in terms of successful or competent action, thus stressing the behavioral aspects, Rosenberg has defined self-esteem mainly as an internal phenomenon – as an attitude, belief, or feeling.

The third and final approach to self-esteem conceptualizes it as a more complex phenomenon consisting of both behavioral dimensions and internal phenomena. Nathaniel Branden (1969, p. 110) stated that "self-esteem has two interrelated aspects: it entails a sense of personal efficacy and a sense of personal worth. It is the integrated sum of self-confidence and self-respect."

Current definitions also vary as to whether they focus on self-esteem as a relatively unchanging stable trait or as a situational phenomenon. Some conceptualizations define self-esteem as being reasonably stable over time, whereas others regard self-esteem as a relatively transitory process that fluctuates in response to situational and contextual stimuli. Meta-analyses tend to support the stability perspective by showing that the stability of self-esteem across all age groups is comparable to that of the major higher-order personality dimensions.

Current definitions also vary depending on what is the focus of the subjective evaluation. Global self-esteem has been defined as either the positivity of the person's evaluation or the level of global regard that one has for the self as a person. Domain-specific self-esteem describes self-confidence in specific areas (e.g. appearance, academics, or social situations). Although self-esteem and self-confidence are distinct concepts, domain-specific self-esteem has an important overlap with self-confidence because it addresses confidence in certain areas of competence. As a consequence, the term self-confidence is often used to describe the process by which people evaluate their various abilities and attributes. Terms such as "self-evaluation" and "self-appraisal" are generally preferred to "self-confidence" because they refer to the way people evaluate or appraise various aspects of the self in a more specific manner.

Gender Differences in Self-esteem and Self-confidence

Some of the best-established findings in the self-esteem literature concern gender differences, which have been systematically examined since the 1990s. Meta-analytic studies (Gentile, Grabe, Dolan-Pascoe, Twenge, & Wells, 2009; Kling, Hyde, Showers, & Buswell, 1999; Major, Barr, Zubek, & Babey, 1999; Twenge & Campbell, 2001) have provided robust evidence that a gender gap exists – that men tend to have higher self-esteem than women. This gender gap emerges in adolescence and persists throughout early and middle adulthood before it narrows in old age. The reported effect size typically ranges from small to medium during all stages of life except adolescence, when it tends to become modestly larger.

This gender gap notwithstanding, a robust finding to emerge from meta-analytic studies is that both men and women seem to follow essentially the same life span normative trajectories throughout the life cycle: for both genders, self-esteem is relatively high in childhood, drops during adolescence, tends to increase during the transition to adulthood, and then declines in old age. These results indicate that self-esteem shows remarkable continuity for both genders, despite the vast array of experiences that an individual faces during his or her lifespan. At the same time, however, these findings reveal systematic changes that might be associated to age-related experiences and contexts. As with the gender differences discussed earlier, the effect size for age-graded increases in self-esteem levels during adulthood falls within the range of small to medium.

It has also been suggested that global self-esteem assessment might mask important gender differences in particular components of the self-evaluation process. Higher self-evaluations (i.e. higher self-confidence) among men in some areas might be balanced by higher self-evaluations among women in other areas. When specific domains of self-esteem have been

the focus of meta-analytic studies, it was found that gender differences vary widely across sub-domains of self-esteem. Men tend to score significantly higher than women on physical appearance, athletic, personal self, and self-satisfaction self-esteem, while women scored higher than men on behavioral conduct and moral-ethics self-esteem. No significant gender differences appeared in social acceptance, family, and affect self-esteem, and the gender difference in physical appearance self-esteem was significant only after 1980, particularly among adults. Although many of the gender differences in specific domains of self-esteem are considerably larger than the differences highlighted in global self-esteem, the gender gap as it relates to domain-specific self-esteem is not substantial.

Research has also examined self-esteem formation by focusing on gender differences in source importance (Schwalbe & Staples, 1991). The relative importance among men and women of reflected appraisal, self-perceptions, and social comparisons as sources of information about the self has received growing attention in recent years. Research supports the notion that women attach more importance to reflected appraisal than men, and that men attach more importance to social comparison than women, whereas no significant differences were found regarding the importance attached to self-perceived competence. An overall pattern of gender similarities also emerged because reflected appraisals are often cited as the most important source of self-esteem among both genders, followed by self-perceived competence and social comparison.

Cross-cultural Considerations of Gender Differences in Self-esteem

The vast majority of empirical studies that have examined gender differences in self-esteem have focused on the United States and other Western industrialized nations. Recent scholars have begun testing whether the widely reported gender and age differences in self-esteem are cross-cultural universals or culture-specific phenomena. Although certain cultures seem to differ in terms of the magnitude of the gender gap, cross-cultural examination supports claims of broad cross-cultural similarities, as men consistently reported higher self-esteem than women. Moreover, age-related increases from late adolescence to middle adulthood have also been found among both genders. The average effect sizes for gender and age ranged from small to medium, thus reinforcing previous research on this topic. As a whole, these results suggest that gender and age differences are driven, at least in part, by universal mechanisms that reflect both universal sociocultural factors and genetically-based biological processes that transcend culture and context (Bleidorn et al., 2016).

Scientific Explanations of Gender Differences in Self-esteem and Self-confidence

Explanations for gender differences in self-esteem levels tend to focus on either maturational changes associated with puberty or social-contextual factors associated with the different expectations women and men face throughout all stages of the life cycle. Although no generally accepted integrative theoretical models exist, two theoretical approaches have

tried to explain the gender gap in self-esteem and self-confidence levels. For instance, some biological theorists argue that gender differences arise from innate temperamental differences between the sexes that came about through the process of natural selection. Evolutionary psychologists have argued that men and women differ in specific domains because they have faced different adaptive problems throughout evolutionary history. Social psychological theorists, on the other hand, argue for more proximal and distal causes of gender differences in self-esteem and self-confidence. According to the social role model, gender differences are a consequence of adopting gender roles that define appropriate and socially accepted conduct for men and women. It is worth noting, however, that explanations derived from biological and social psychological theories are not necessarily mutually exclusive, as social roles can sometimes modify biologically-based patterns (Costa, Terracciano, & McCrae, 2001).

See Also

Self-efficacy
Self-efficacy Theory
Self-esteem, Assessment of
Self-esteem, Expressions of
Self-esteem, Theory of

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Gender Differences in Subjective Well-Being

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Introduction and Overview

Subjective well-being (SWB) is a positive psychological characteristic that is associated with happiness, life satisfaction, and mental health, whilst being negatively correlated with mental health disorders such as depression and anxiety. SWB consists of both cognitive and emotional evaluations about one's own life. The emotional component encompasses moods (positive and negative), whilst the cognitive component consists of an evaluation of one's own satisfaction with different aspects of life. The cognitive component is therefore influenced by an individual's outlook and their perception of what constitutes a "good life." Subjective well-being is therefore a very broad concept including, but not limited to, the experience of positive emotions, absence or low levels of negative emotions, and high life satisfaction. An individual's subjective well-being is largely stable over time, and whilst setbacks or gains may have a temporary effect, the individual eventually returns to their "baseline."

The relationship between gender and subjective well-being is not straightforward. Some decades ago the subjective well-being of women was consistently higher than that of men. In more recent times, the subjective well-being of women appears to have steadily decreased. Women have greater rates of negative affect, as well as lower rates of life satisfaction and positive affect in comparison to men in Western countries. The prevalence of mental illnesses such as depression and anxiety is also much higher in females than in males across the lifespan, especially in high-income countries.

Research suggests that women may only be more satisfied with their lives when they are placed in similar circumstances to men, therefore the cognitive component of subjective well-being may be higher in females than males. However, the emotional component appears to be higher in males than in females. On the other hand, several studies have reported very little difference between males and females in terms of life satisfaction and happiness. This may be due to the notion that although women are more satisfied when in the same circumstances as men, generally women live in worse conditions than men which

may mask this effect. Certain factors such as age and other demographic variables may also conceal gender effects if not taken into account.

Gender Differences in Subjective Well-Being Across the Lifespan

Although a good deal of research shows little difference in SWB between males and females, it has been argued that any difference has been masked by an interaction effect between age, gender, and well-being. During childhood and adolescence, males are not only less likely to develop anxiety or depression; they are also more likely to report higher levels of subjective well-being than females. This continues up until the age of about 18 years, at which point females begin to experience higher levels of subjective well-being than males.

Before the age of 45, women in high-income countries show modest increases in SWB compared with men, which may be due to advances in terms of gender equality in these societies. In lower income countries, there is little difference between genders in younger adults. However, whilst women in early to mid-adulthood may have similar or even higher SWB compared with men, older women tend to report lower SWB than their male counterparts, particularly in industrialized countries. This gender difference increases into old age, such that the largest gender gap is observed in very old samples.

The decline in SWB in older women in developed countries has been explained in terms of the devaluation of the social worth of older females. In these countries, the media and society as a whole place an emphasis on beauty and attractiveness in women being associated with youth, whilst older males are still depicted as being attractive due to their power and experience. An alternative explanation is that although women tend to live longer than men, they also experience more years of illness or disability. Subjective well-being is correlated with physical health, therefore living in poorer health may contribute to lower SWB. With the increasing aging population seen in many industrialized countries, the number of females experiencing a decline in SWB may well be on the rise.

Cultural Influences on Gender Differences in Subjective Well-Being

The majority of literature regarding gender differences in well-being comes from the United States and Western European countries, however there is increasing interest in cross-cultural studies in this area. Findings from these studies show that gender differences in SWB are not identical across all countries, and whilst women report slightly lower SWB than men in some countries, they report slightly higher SWB in other countries. It has been reported that in most countries women are actually happier and more satisfied than men. Overall, it appears that females report higher SWB in developing countries, such as African countries, whilst in industrialized societies such as the United States and European countries, females report lower SWB than males. Thus, it may be the wealth of research conducted in developed countries that has led some researchers to conclude that women have lower SWB than men.

One explanation for these cross-cultural differences centers on gender inequality. As gender inequality varies across countries, so too does the difference in ratings of well-being between males and females. Generally, the greater the gender inequality of a country, the larger the gender difference in SWB is. However, this effect depends on the cultural acceptance of gender inequality. In countries where equality is favored, differences in SWB decrease where there is equality for both genders in the labor market. Conversely, in countries where gender inequality in the labor market is accepted, gender differences in SWB increase as women's equality in the workplace increases. Thus, gender inequality appears to play an important role in the relationship between gender and SWB.

Other factors may also explain the differential effects of country-level conditions on male and female well-being. The political climate of the country and the predominant religion, for instance, are thought to have strong effects. A history of communism is associated with poorer outcomes for females, whilst political freedom raises SWB for males more than for females. In terms of religion, females report higher SWB in comparison to men in countries with a high percentage of Muslims, whilst the opposite is found in countries with a high percentage of Catholics.

Putative Explanations for Gender Differences in Subjective Well-Being

It has been suggested that gender differences in subjective well-being may be due to biological causes, in particular hormonal effects. Indeed, hormonal fluctuations across the menstrual cycle and postpartum are linked with increased negative affect and depression. However, gender differences in SWB cannot be fully explained by biological roots. Since the pattern varies across countries, it is far more likely that there is a social explanation for these differences.

One such social explanation for these gender differences is that males and females are exposed to different living conditions. In many societies women have reduced access to resources (such as income), opportunities (e.g. in the workforce), and power (e.g. being underrepresented in parliament). These disadvantages may underlie the gender differences in SWB by contributing to the unhappiness and reduced life satisfaction seen in females. Subjective well-being depends on the ability of an individual to reach their goals and achieve their ambitions, therefore as females have a reduced potential for pursuing goals they are often less successful in reaching them. This may also explain the cross-cultural differences as the goals of women in countries where gender inequality is accepted may be different from those in industrialized countries and therefore those women may not experience a reduced potential for achieving those goals.

On the other hand, research shows that females actually experienced higher SWB than males up until the early to mid-1980s. It is since the late 1990s that this pattern has changed, with women now reporting reduced life satisfaction compared with men in advanced industrial societies. Given the increase in gender equality over these years, the above explanation for lower female SWB does not explain this shift in subjective experience. Several studies have also found that income, education, and occupation explain surprisingly little of the variation between genders in SWB. An alternative view is that it is the *expectation* of gender

equality and female employment that is detrimental to SWB. In developing countries, there is less expectation placed on women, therefore SWB is higher.

A final explanation for gender differences in SWB comes from differences in personality traits. In self-reports, males tend to show higher levels of extraversion, conscientiousness and openness to experience, whilst females report higher levels of neuroticism and agreeableness. Research has shown that controlling for neuroticism and extraversion eliminates any gender difference in SWB, suggesting that personality traits may play a role in SWB.

Future Directions for Research

The majority of research to date has focused on healthy populations, but there is some evidence to suggest the findings may be different in clinical populations. Whilst females consistently give lower ratings of well-being in the general population in industrialized countries, this may not be the case when symptoms of anxiety and/or depression are present. Gender differences are apparent in adolescents without symptoms of anxiety and depression, whilst in those who do experience such symptoms, this gender difference is not evident. It is thought that gender may be a moderator in the well-being of adolescents with these symptoms, with males being more negatively impacted than females. Furthermore, it appears that males continue to experience lower SWB even after remission of symptoms. This may be due to gender differences in coping strategies, as well as the greater social sensitivity and emotional regulation demonstrated by females.

See Also

Gender Differences in Self-esteem and Self-confidence
Life Satisfaction
Positive and Negative Affective States, Assessment of

Further Readings

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General Personality Factor

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General Factor of Personality

Conceptualization and Relevance

The general factor of personality (GFP) is allegedly the most general personality dimension, accounting for very substantial amounts of the variance shared by high-order factors of personality, occupying the apex of the hierarchical structure of personality. A GFP can be located in most accepted measures of personality, be they normal or abnormal, and for the Five Factor Model (Big Five), which finding has been replicated a number of times across inventories and countries.

In short, the GFP (also Big One or B1) is considered a basic and adaptive biological disposition of non-cognitive personality, with an important genetic and evolutionary foundation. It integrates the variance that is shared by the positive pole of the broader factors of affection, motivation, temperament and personality.

The rediscovery of the GFP (i.e. Musek, 2007) is contextualized by the fact that the Big Five personality traits (B5), each of which was in theory independent or orthogonal to one another, have instead been found to be empirically interrelated. This justified the need to carry out more targeted factor analyses in order to explore or confirm the existence of super-factors of a higher order than the B5. As a result, two more general factors (Big Two or B2) were identified and situated above the B5 factors (e.g. DeYoung, Peterson, & Higgins, 2002), labeled Alpha or Stability (shared variance of agreeableness, conscientiousness and emotional stability) and Beta or Plasticity (shared variance of extraversion and openness). Later, Musek (2007) replicated the B2 solution and also found robust evidence of the GFP or B1 above the B2.

High scores for the GFP correspond to what could be considered a set of positive qualities of personality or an "ideal" personality (relatively high openness, conscientiousness, extraversion and agreeableness, and low neuroticism), which is best suited to a healthy adaptation to the collective life that is characteristic of our modern society. Thus, the GFP has been interpreted as the adult development of "good" temperament. Conversely, low GFP

scores correspond to what could be considered a "difficult" personality. Therefore, the GFP clearly has a positive and a negative pole. Those who approximate to the positive pole of the GFP are altruistic, pleasant, co-operative, relaxed, responsible, sociable and open people, who are mentally strong with a high self-esteem, and a subjective and psychological sense of well-being. People with a high GFP are socially and emotionally strong, which promotes interpersonal relationships, personal growth, and mental stability. Those who can be considered to lie at the negative pole of the GFP (lower scores) are those with an opposite profile in terms of such traits, corresponding to socially and emotionally compromised personalities, who have social problems and difficulties in coping with adversity, and in maintaining a state of well-being. Thus, it is these individuals who are more prone to suffer from psychopathological or personality disorders.

The most comprehensive reviews that present favorable (Irwing, 2013; Rushton & Irwing, 2011) and unfavorable (Ferguson, Chamorro-Premuzic, Pickering, & Weiss, 2011) perspectives on the GFP are included under the heading "References."

Life History Theory

It was Darwin who suggested that natural selection had endowed humanity with more co-operative and less controversial personalities. From this basic idea, the Life History (LH) theory was spawned, which J. Philippe Rushton adapted from the sphere of sociobiology to that of personality and that was further expanded on by José Aurelio Figueredo, who postulated that a combination of genetic traits are synergistically organized in humans to help them face the challenges of life (survival, growth and reproduction). This hypothetical combination of traits is a highly inheritable overarching dimension called "Super-K," which is presumably composed of three lower-order factors (that are also inheritable): a GFP; a "co-vitality" health factor that integrates various indicators of the overall degree of positive affect and well-being, such as physical and mental health; and a K-factor that brings together a diverse range of features related to personal, family, and social functioning, such as persistence, flexible re-evaluation, planning, and the quality of family and social relationships. According to this theory, the GFP is one of the main indicators of a global adaptive life strategy, consistent with a "slower" leaning in terms of mating and caring for offspring. Although this "slow" strategy is characteristic of humans and other animals (e.g. elephants), individual differences can also be appreciated within the human species. The "slow" or "K-strategy" involves devoting more resources to parental effort (having fewer children and taking good care of the offspring) and to a nepotistic effort (aimed at protecting the survival of the family) rather than a mating effort (focused on finding and maintaining sexual partners). By contrast, the "fast" or "r-strategy" characterizes those species or individuals who devote more resources to mating effort rather than parental or nepotistic effort, having more offspring but devoting less attention to them in order to better focus on ensuring their own survival. Accordingly, the GFP has been strongly associated with indicators of the "slow" life strategy.

Cross-Validation

The GFP has been located in a plethora of separate or combined inventories of personality or psychopathology (using both self-ratings and peer/others ratings) mainly through exploratory factor analysis (EFA) or confirmatory factor analysis (CFA) of existing or published

matrices (e.g. in test manuals or peer-reviewed journal papers), EFA or CFA of new data, CFA of meta-analytically derived correlation matrices, EFA of twin data, and CFA of multi-trait-multi-method (MTMM) twin data.

Following is a list of the main questionnaires from which the GFP has been extracted: EAS Temperament Survey for Children; Guildford-Zimmerman Temperament Survey (GZTS); California Psychological Inventory; Temperament and Character Inventory (TCI); Comrey Personality Scales (CPS); Multidimensional Personality Questionnaire (MPQ); Minnesota Multiphasic Personality Inventory-2 (MMPI-2); Millon Clinical Multiaxial Inventory (MCMI-III); Personality Assessment Inventory (PAI); Dimensional Assessment of Personality Pathology-Basic Questionnaire (DAPP-BQ); Multicultural Personality Questionnaire (MPQ); The HEXACO Personality Inventory (HEXACO-60); International Personality Item Pool (IPIP-300); Big Five Inventory (BFI); Big Five Observer (BFO); Gough Adjective Checklist; Occupational Personality Questionnaire (OPQ32); Hogan Personality Inventory (HPI); Trait Emotional Intelligence Questionnaire (TEIQue); The NEO-PI-R.

Biological Roots

The temperamental basis of GFP has been based on the Reinforcement Sensitivity Theory, especially on both the behavioral activation system (BAS) and the behavioral inhibition system (BIS). The GFP has been significantly positively correlated with the BAS and negatively correlated with the BIS. DeYoung et al. (2002) provided a possible neurobiological substrate for the B2 that has been also applied to the GFP. They suggested that Stability reflects individual differences in the functioning of the serotonergic system, which regulates the stability of emotion and behavior, while Plasticity reflects individual differences in the functioning of the dopaminergic system, which governs exploratory behavior (BAS) and cognitive flexibility. According to this hypothesis, it is expected that individual differences in serotonergic and dopaminergic function might be at least partially responsible for the pattern of intercorrelations among the B5. Therefore, a high GFP can be expected to be also associated to higher balanced levels of serotonin and dopamine.

Regarding the evolutionary genetics base of the GFP several cross-national twin studies have found that 50% of the GFP variance is due to genetic influence and 50% to non-shared environmental influence (e.g. due to any personal experience such as an illness or chance friendship that happens to one sibling and not to the other), similar to that found for the B5. Likewise, some relevant part of the genetic variance in the GFP is allegedly of non-addiditive variety (dominance and epistasis). All these results support the idea that the GFP is largely a genetic factor.

Critical Questions for Construct Validity: Existence, Consistency, and Psychological Meaning

The main criticisms of the GFP focus principally on three issues: its very existence, its consistency, and its psychological meaning. As for the existence of the GFP, although it is beyond dispute that the B5 factors are interrelated and that more general super-factors can be obtained through factor analysis, the critical question is whether these factorial solutions (both B2 and GFP) are substantive or artifacts. Since the GFP has been replicated in

numerous studies, one could conclude that it obviously exists. However, some critics have suggested that the procedures used to extract the GFP in the factor analysis are inappropriate, which may introduce a bias into the results. In addition, its critics point out that the correlations between the B5 factors are not as high as those between cognitive abilities, indicating that the psychometric and theoretical relevance of a GFP is not at all comparable with that of the general factor of intelligence. Indeed, meta-analyses have shown that a univariate hierarchical model of personality (B5-B2-B1) may have a weaker relevance than a bifactor model (B5-B2-B5-B1) in which the B5 simultaneously share their variances with B2 as the pair of higher-order factors, and with GFP as the single higher-order factor.

Concerning the consistency of the GFP, a number of studies have found that GFPs extracted from different personality inventories have considerable overlap, with an average correlation of about r = .60. This fact indicates that the GFP is invariant across instruments and samples. However, it has been found through meta-analysis that the GFP is reduced substantially when based on between-inventory data (26%) compared to within-inventory data (50%), which has been interpreted by critics as robust evidence that the GFP is at least partially an artifact response that may be reduced by administering scales from different inventories before conducting the extraction of the latent variable.

The possibility that the GFP may be just a statistical artifact of the unification of the variances since the responses to personality questionnaires may be biased toward a socially desirable rating is one of the main criticisms of the significance of the GFP. However, although the GFP does include part of this variance, it is not simply reduced to it. Numerous studies, and even some meta-analyses, have shown that social desirability does not cancel the substantive component of the GFP. For example, it has been confirmed that the GFP is a better indicator of social effectiveness than of social desirability. Accordingly, individuals with a high GFP are indeed more prone to co-operation, yet experimental research using The Prisoner's Dilemma has also shown that this inclination is not inflexible, such that people with a high GFP may stop co-operating if the co-operating of the other party so demands.

The GFP represents, to some extent, an intelligent personality, that is to say a collection of positive and generally adaptive personality traits. Regarding its psychological meaning, the GFP symbolizes a predisposition to be emotional and socially efficient. In this sense, since the GFP reflects a mix of socially desirable dispositions, the GFP has been presented as reflecting social effectiveness. Consistently, advocates of the GFP have argued that the high end of the GFP is emotional intelligence (e.g. Rushton & Irwing, 2011). In fact, the highest correlations between the GFP and other constructs are precisely those of the GFP with social effectiveness and trait emotional intelligence (somewhere around r = .65–85).

Critics have highlighted that the next wave of studies have to show that the GFP could predict (criterion validity) theoretically relevant real-life outcomes (e.g. academic performance, job performance), especially over and above (incremental validity) other non-cognitive global predictors such as the B5, the B2, or trait emotional intelligence. This is particularly necessary using objective (non-self-report) measures of the criterion variables.

As for its divergent validity, there appears to be a positive association between the GFP and *g*, although its association with specific cognitive abilities and other variables at the personality-intellect interface is less clear, like creativity (e.g. divergent thinking). However, it is expected that the magnitude of these correlations would be low, despite being positive and significant.

See Also

Big Five
Emotional Intelligence, Correlates of
FFM and Facets
Temperament, Personality Correlates of

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Genetic Basis of Personality

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Behavioral Genetics

The field of behavioral genetics consists of interdisciplinary research that studies variations in human behavior to determine the extent to which individual differences in behavior are attributed to genetic or environmental factors. Early research in behavioral genetics focused on determining the heritability of various traits and behaviors. Heritability is defined as the proportion of observable behavioral variance that is due to genetic variation. That is, heritability is the extent to which individual differences in behavior are due to genetic differences between individuals. These genetic differences can be broken down into additive and non-additive effects. Additive effects are genes that contribute linearly, regardless of what other genes are present, while non-additive effects are dominant genes that contribute in a non-linear fashion. The remaining sources of variance are shared and non-shared environmental variance. The shared environment is any aspect that twins or siblings both experienced, such as parenting styles and socio-economic status in childhood. Non-shared environmental factors are occurrences that one twin or sibling experiences but the other does not. Different friend groups, teachers, or traumatic accidents are considered examples of non-shared environmental effects.

Methods

The two most common methods of measuring heritability are twin studies and adoption studies. Twin studies involve collecting data from sets of both monozygotic (MZ; identical) and dizygotic (DZ; fraternal) twins. MZ twins are born from the same embryo and have the exact same genetic makeup. DZ twins are born from two different embryos and share approximately 50% of their genes. The logic behind twin studies is simple: if MZ twins are more similar on various traits than DZ twins, than these traits are considered to be influenced by genetic factors to some degree. The basic formula for calculating rough estimates

of heritability involves correlations, such that heritability equals two times the difference of the correlation between MZ twins and the correlation between DZ twins. As a formula it is written as $h^2 = 2(r_{MZ} - r_{DZ})$. More recent behavior genetic studies use a more complex model-fitting approach to estimate genetic and environmental effects (for more information see Further Readings).

One criticism of twin studies is that it assumes that both MZ and DZ twins experience the same degree of shared environmental similarity. This assumption has been criticized because it is believed that MZ twins may be treated more similarly than DZ twins, and therefore, the greater correlations between MZ twins could be attributed to the greater environmental similarity that they experience compared to DZ twins. While the equal environments assumption remains a criticism in the area of behavioral genetics, there is little evidence to suggest that it is a major confounding issue in twin studies. Furthermore, direct tests of this assumption demonstrate that even if MZ twins are treated more similarly, this is not a contributing factor to the larger correlations found between MZ twins.

Another method used in behavioral genetic research is adoption studies. Adoption studies are a valuable tool to help disentangle the genetic and environmental influences in genetically similar families. Adoption studies may take two forms. The first looks at family members who are genetically unrelated and living together; this method is able to determine the extent to which shared environmental influences are present among family members. The second is concerned with family members who are genetically related but are living apart; this method allows for the testing of genetic influences. Another useful approach in this field is family studies. This method assesses heritability using a broader family scope including parents, siblings, grandparents, cousins, and so forth. In each of these methods, the goal is to determine the extent to which individual differences are due to genetic and/or environmental differences – either shared or non-shared. The earliest twin and adoption studies focused on general cognitive ability (*g*), otherwise known as general intelligence, which is assessed by intelligence quotient (IQ) tests. Average correlations for MZ and DZ twins are .86 and .60 respectively, .47 for non-twin siblings, and .32 for adopted siblings. General intelligence is highly heritable with 50% of the variance due to genetic influence, 25% due to non-shared environmental effects, and 25% due to shared environmental effects.

The Heritability of Personality

It is now well accepted in personality research that approximately 30–50% of the variance in personality traits is a result of additive genetic influence, with the remaining variation coming from non-shared environmental effects. Non-additive genetic effects and shared environmental effects contribute negligibly to the variation of individual personality traits. The Big Five personality traits (extraversion, agreeableness, neuroticism, conscientiousness, and openness to experience) have been studied extensively in the area of behavioral genetics. An abundance of data has been collected from MZ twins and DZ twins raised both together and apart, and a variety of other sibling relationships such as non-twin biological and adopted siblings. The heritability estimates for each of the five traits are substantial, ranging from 43% to 54%. Studies have found relationships between the Big Five and other constructs such as depression, humor styles, and entrepreneurial tendencies, all of which demonstrate a certain level of heritability.

In addition to classical personality models (e.g. the Big Five), behavioral genetic research has examined other individual differences in personality, such as attitudes, empathy, parental attachment, and self-esteem. For instance, traditionalism is the extent to which an individual has liberal or conservative views on a variety of matters. Initially, this attitudinal dimension was not expected to demonstrate any significant genetic influence, however, heritability estimates of approximately 50% have been found. Researchers looking at individual differences in political attitudes are interested in which political party individuals identify with and how intensely they identify with this party. Political party identification consists of mainly shared environmental influence, whereas the intensity with which individuals identify with a party is a result of genetic and non-shared environmental influence.

Twin studies have also assessed heritability estimates of empathy across age groups. Evidence suggests that empathic responses demonstrate increasing genetic influence from infancy through to adulthood. Furthermore, attachment research suggests there is genetic influence for children's perceptions of parental warmth, but no genetic influence for children's perceptions of parental control. Attachment styles demonstrate modest heritability estimates, but considerably more shared environmental influence. Lastly, there is modest genetic and substantial non-shared environmental influence on individual differences in self-esteem, but no evidence of shared environmental influence.

Another aspect of personality that has been an area of focus in behavioral genetic research is personality disorders. Personality disorders are a rigid and stable cluster of maladaptive personality traits. These traits are seen as a normal part of personality by the person with the disorder, but are often a cause of significant distress to those around them. Few studies have collectively compared all of the heritabilities of existing personality disorders. However, a study of Norwegian adult twins assessed the heritabilities of all personality disorders recognized by the American Psychiatric Association, except for antisocial personality disorder. They found that heritability estimates ranged from 28% (paranoid and avoidant personality disorders) to 79% (narcissistic personality disorder), with an overall heritability estimate for personality disorders of 60%. While not included in the Norwegian study because of low occurrence in the selected sample, antisocial personality disorder has been studied extensively in behavior genetic research. Heritabilities for antisocial personality disorder range from 50% to 60%.

Other Applications of Behavior Genetics

While much of the early research has provided insight into the heritabilities of various personality traits, recent work has focused on studying the relationship between genetic and environmental factors. This interplay between genes and environment is evident in two ways: gene–environment correlations and gene–environment interactions. Gene–environment correlations refer to experiences being more likely to happen to people with certain genetic predispositions. For instance, men who experience greater social potency and achievement, and women who experience greater social closeness and harm avoidance, are more likely to get married than individuals who score low on these personality traits. Gene–environment interactions refer to the environment being affected by our genes or our genes being affected by our environment. For example, children who have a genetic

propensity for aggression have a greater risk of behaving aggressively but only when they have a poor relationship with their teacher.

Longitudinal twin studies are an effective means of determining the stability of genetic and environmental influences on personality over time. It allows researchers to address a number of questions such as: does heritability change or remain stable over time? Research shows that the contribution of genetic influences (i.e. heritability) decreases slightly over an adult's lifespan. The greatest contribution is seen in early adulthood, and then it slowly decreases into middle and older age. On the other hand, the contribution of environmental influences becomes more prominent over the life-span. Another question that can be explored through longitudinal twin studies is whether or not genetic and environmental differences in individual personalities remain stable or change across adulthood. Research suggests that from mid-adulthood and onward, genetic influences on differences in personality remain quite stable over time. Conversely, environmental influences on individual personality differences are not very stable in early adulthood, but become increasingly stable from middle adulthood and onward.

Molecular Genetics

Molecular genetics, a field closely related to behavioral genetics, combines the areas of biology and genetics to examine both individual genes and groups of genes at the molecular level. By examining the molecular makeup of genes, scientists are able to pinpoint which genes are responsible for certain diseases. However, in personality research, it is much more difficult to map genes to specific traits. Unlike molecular genetic research in other fields where a single gene may be responsible for a particular disease or disorder (e.g. cystic fibrosis and Huntington's disease), personality traits are not established from one gene. Instead, personality traits are linked to multiple genes that all contribute slightly to the trait, incidentally making them much more difficult to identify. While mapping genes to personality would transform both genetic and personality research by allowing for much more precise analyses, it is an incredibly daunting task. However, despite the incredible difficulties associated with molecular genetic research in personality, there have been a number of traits that have been linked to certain genes. Novelty seeking and neuroticism have been linked to dopamine and serotonin activity, respectively. Future technology will undoubtedly allow researchers to delve further into the world of molecular genetics and personality. New models must consider the interplay between genes and the environment in order to fully understand the genetic basis of personality.

See Also

Behavioral Genetics
Heritability
Twin Studies and Personality
Twin Studies in Personality Research

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Gene–Environment Interaction

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Behavioral genetics as applied to humans refers to the scientific study of the nature and origin of individual differences or of variations between people. Some behavioral geneticists also work with non-human animals. Fundamentally, individual differences can be attributed to genetic differences and to differences in the environment. Genetic effects can be either additive or non-additive (see twin studies of personality), while environmental effects are either shared or non-shared. However, only non-shared environmental effects can contribute to individual differences.

Two additional sources of variation are genotype-environment correlations and genotype-environment interactions. $G \times E$ interactions are the topic of this entry but in order to distinguish between these and $G \times E$ correlations the latter will also be described.

A $G \times E$ interaction occurs either when the way in which a genotype expresses itself varies as a function of the environment or when the effects of an environment vary as a function of the genotype. To illustrate, consider that identical (or monozygotic, MZ) twins, who share 100% of their genes, have about a 48% concordance rate for schizophrenia, whereas fraternal (or dizygotic, DZ) twins, who share about 50% of their genes on average, only have a 17% concordance rate for schizophrenia. The difference between the MZ and DZ concordance rates clearly indicates a genetic contribution to the development of schizophrenia but the fact that the MZ rate is less than 50% also means that in discordant pairs the twins must have been differentially exposed to one or more environmental triggers. This, in turn, illustrates that the genetic predisposition to schizophrenia manifests, in part, as a function of the environment, which defines a $G \times E$ interaction.

There are several ways to investigate $G \times E$ interaction, including animal studies, family studies, studies of adoptees and their adoptive and biological parents, twin studies, and molecular genetic studies.

Animal studies are typically conducted in a laboratory and have the advantage that the environment can be directly manipulated and that animals can be randomly assigned to different environments. The animals' genotypes can also be manipulated. Consider the well-known study by Cooper and Zubek (1958) in which rats were bred to be either adept

or poor at running mazes ("maze bright" and "maze dull"). Members of the two breeds were then assigned to be reared either in an enhanced environment, in which they had colored cages and toys, or in a restricted environment, which was not colored and which had no toys. Being raised in an enhanced environment greatly improved the maze-running ability of maze dull rats while having no effect on the ability of maze bright rats. Being raised in a restricted environment, conversely, had no effect on the maze dull rats but greatly diminished the maze-running ability of the maze bright rats.

Family studies focus on similarities and differences between parents and their biological offspring and between biological siblings raised together. They do not include adoptive children or twins and, as such, cannot tease apart the separate effects of genes and the environment. They can, however, be informative with respect to G×E interactions. To illustrate, Cannon, Mednick, and Parnas (1990) compared high versus low functioning children of schizophrenic mothers and identified a number of salient differences between the groups' environments. Despite both groups being equally genetically at risk for schizophrenia, the low functioning children, who had presented with some form of psychiatric disorder, were more likely to have been exposed to prenatal and birth complications and to have been separated from their mothers early in development due to their mother being hospitalized.

Adoption studies can illustrate G×E interactions as long as information is available concerning the adoptees themselves and both their adoptive and biological parents. Relations between adoptees and their adoptive parents are attributable to their shared environment whereas similarities between adoptees and their biological parents are due to their shared genetic material. A G×E interaction may occur if the adopted children's genetic predisposition toward some behavior is enhanced or diminished as a function of their adoptive home environment. In two studies, for example, adopted children whose adoptive parents had a criminal record were more likely to be convicted of crimes themselves if their biological parents also had a criminal record (Bohman, 1996; Brennan, Mednick, & Jacobsen, 1996).

Twin studies are used in a variety of ways to investigate G×E interactions. In a number of twin studies, for example, it has been demonstrated that the genetic contribution to individual differences in traits and behaviors varies as a function of the environment. The heritability of alcohol abuse, for example, is higher in more permissive rearing environments, and the heritability of general intelligence, estimated using twins, is substantially larger among families in which the parents are more highly educated (Plomin, DeFries, McClearn, & McGuffin, 2008). Studies of identical twins separated at birth and raised apart in different environments are another powerful way to detect G×E interactions.

Molecular genetic research seeks to identify specific genes which contribute to traits and behaviors, and the extent to which the effect of a gene or genes on individuals varies as a function of environmental circumstance. One gene (MAOA), for example, has been associated with antisocial behavior among individuals exposed to maltreatment during development, while showing no such significant association among individuals who had not been abused. Another gene (5-HTT) has been associated with depression among individuals who experienced stressful life events but was found not to be associated with depression among individuals who reported little stress in their lives. A number of other molecular genetic studies have also reported various G×E interaction effects (see Plomin et al., 2008).

Two more recent approaches to studying G×E interactions include polygenic investigations, in which the effect an environmental factor may have on multiple genes is identified,

and focusing on three-way gene x environment x environment interactions, which show the interactive effect that multiple environmental factors may have on a genotype.

It is useful to distinguish between G×E *interactions* and gene–environment *correlations* because they are at times confused or used interchangeably, in the popular press if not in scientific circles. As described, G×E interactions occur when the way in which a genotype expresses itself varies as a function of the environment or when the effects of the environment vary as a function of the genotype. Gene–environment correlations, in contrast, refer to ways in which an individual's environment may be shaped, in part, by their genetic predispositions.

Plomin et al. (2008) describe three types of gene–environment correlation – passive, evocative, and active – and illustrate each of these with the example of musical talent. Assuming musical ability is heritable then a child with musical talent is likely to have at least one parent who is also musically inclined. The child has thus received a genetic predisposition toward being musical and it is also likely that their parents expose them to music at home or by going to concerts or providing them with music lessons. These instances are examples of a passive gene–environment correlation: the child has passively inherited both genes and an environment which contribute to their development of a talent for music. An example of an evocative gene–environment correlation might be a teacher who recognizes a child's potential for music and who encourages the child to join the school band or who provides the child with other opportunities to help them realize their potential. Finally, a musically gifted child may be driven to seek out such opportunities for themselves: an example of an active gene–environment correlation. Gene–environment correlations can be investigated through comparisons of adoptive and non-adoptive families. They can also be detected in adoption studies by examining the correlation between the scores of the adopted child's biological parents on a given trait or behavior and the child's adoptive rearing environment. Finally, gene–environment correlations can be illustrated through multivariate behavioral genetic studies which examine the extent to which the genetic effects on a measure of the environment correlate with genetic effects on measures of a trait or behavior.

In conclusion, G×E interactions are another contributor to individual differences. The importance of G×E interactions has become increasingly recognized over approximately the past two decades. G×E interactions can be identified through a number of different behavior genetic designs and by studying humans and non-human animals.

See Also

Behavioral Genetics, General Features and Methodological Issues
Twin Studies and Personality
Twin Studies in Personality Research

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Genius, Personality Correlates of

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What is Genius?

The complexity of the genius construct has created difficulties for a scientifically precise and inclusive definition (e.g. Treffert, 2010). Common descriptors of genius include "intellectual," "creative," "mad," "hardworking," and "misunderstood," yet these characteristics at best represent correlates or symptoms of genius. However, researchers typically define genius as the general co-occurrence of creativity (i.e. the multifaceted ability to formulate new ideas based on existing ideas), achieved eminence, and superlative intellectual ability (i.e. exceptionally high logical, analytical, and mechanical reasoning, alongside creative problem-solving abilities). There are many ways to achieve eminence, such that geniuses are heterogeneous (Simonton, 2012). Specifically, achieved eminence can be the creation of at least one exceptional domain-specific product that is original (i.e. creative) and acknowledged as adding considerable value to the discipline. It is important to recognize that the genius label is somewhat subjective and socially dictated, as individuals' venerable contributions only matter for the labeling of genius if others recognize and value the contributions. Also, the degree of creativity involved depends on the state of the discipline (i.e. a well-developed discipline requires more creative thought to be original). Therefore, genius depends on the time and culture in which the genius individual (1) lived and (2) is being judged from (many geniuses are only recognized posthumously).

Intelligence and Genius

While general intellectual ability is necessary for creative genius as defined by scientists, it alone is not sufficient for qualifying the label. Many individuals with exceptionally high intelligence scores have not produced innovative or exceptional contributions.

Geniuses generally represent the upper tail of the highly skewed intellectual ability distribution, with scientifically-inclined and artistically inclined geniuses (i.e. those who have

a greater focus on the sciences or the arts) typically possessing IQ scores between 140–155 and 125–130, respectively. However, genius' exceptional creative achievement is robustly linked to intelligence, such that intelligence may be necessary for outstanding creative potential and divergent thinking. Meta-analytic findings likewise show intelligence is moderately positively correlated with divergent thinking (Sánchez-Ruiz et al., 2011).

Origins of Genius

Genius is the product of additive and multiplicative effects of disposition (genetics, personality) and environment (sociocultural pressures) interacting. Genes heavily predispose individuals toward genius, wiring faster learning/improvement, high intellectual/cognitive abilities, and general personality trait patterns to further foster creativity and achievement. Specifically, meta-analytic research shows that 20% of the variation in creative achievement is due to genetics (Simonton, 2015)

However, nurturance factors are also necessary, as brilliance requires encouragement and an educational knowledge base to build from. Specifically, the genius' creative component operates after mastering one or more disciplines (e.g. the 10-year expert theory). Creative thought processes are also posited as being sensitive to and changed by the environment (i.e. geniuses form deep, inspirational connections with their social and physical environments). Historical accounts show oscillations over time for creative genius, suggesting that situational factors (e.g. culture) influence genius expression. Also, creativity is understood and expressed differently cross-culturally. For example, Western cultures judge creative endeavors far more in terms of useable products while Eastern cultures judge them based on personal fulfillment/enlightenment products, and individualistic cultures often foster more creative expression than collectivist cultures (Glăveanu, 2010). Hence, culture influences the occurrence of and subjective value society ascribes to geniuses' creative endeavors.

Measuring Genius

Numerous methodological approaches are used to identify unifying features of creative genius, from non-generalizable psychobiographic case studies that predict personality via historical document to quantitative comparison of extant genius and non-genius samples to multi-case personality profile comparisons of geniuses from different domains (e.g. artistically vs. scientifically inclined geniuses). Unfortunately, aggregate statistical paradigms risk losing crucial ideographic information about the development of genius and all methods for studying genius are retrospective, occurring only after genius has been publicly recognized and labeled. Also, genius is not strictly the dichotomy that researchers and society conceptualize it to be, as individuals differ in the magnitude of their exceptional achievement, intelligence, and discipline contributions. To overcome these issues, future consideration of genius needs to explore it along a more precise, continuous spectrum to better understand the construct. As well, non-profit "genius organizations" (e.g. Mensa International, the Four Sigma Society, the Prometheus Society, etc.) offer many potentially

invaluable genius-generated tests, varying widely in their content, admission stringency (i.e. from 1 in 50 to 1 in 11,000), and metric validity, that scientists should also utilize to better understand genius and its personality indicators as identified by highly intelligent potential geniuses and recognized geniuses.

Personality Correlates of Genius

Beyond genius' informal correlation to personality through historical case studies, the connection between genius and personality has been highly contested, with some theorists subscribing to the cognitive view that no qualitative personality differences exist between geniuses and non-geniuses (only knowledge base and practice factors). Others proposing the psychometric view that creative genius, founded on sensitivity to problems and divergent thinking, may itself be part of personality, making a particular personality profile a prerequisite of the genius label. This personality perspective is controversial as personality–genius relations have not yet been shown to be causal in nature (Weisberg, 2010). Furthermore, because labeled geniuses are not a homogeneous group, personality profile differences exist within the group.

It should also be noted that personality and individual difference traits' outcomes – their utility and adaptive value – change within geniuses compared to the general population. For example, high intelligence appears to significantly moderate psychopathologic tendencies and traits that are negative in the general population such that they can be less harmful or positive for geniuses (Simonton, 2012). Conversely, creativity, which enhances mental health in the general population, inhibits geniuses' overall mental health (Simonton, 2014). Despite these interpretive complexities, some personality tendencies are common in geniuses. The classic creative personality of many geniuses includes high autonomy/non-conformity and tolerance for ambiguity.

In terms of major personality traits, geniuses historically display low levels of agreeableness (the tendency to be interpersonally acceptable and co-operative) and impulse control, though scientifically inclined geniuses show higher agreeableness than artistically focused geniuses. Scientifically inclined individuals also show higher conscientiousness (the tendency toward order, dutifulness, and diligence) than artistically inclined individuals.

Openness (the tendency to willingly try or be exposed to new experiences) is also high in geniuses, particularly those very high in creativity. In fact, cross-culturally, the openness construct overlaps with traditional intelligence (DeYoung et al., 2012). This elevated openness is credited with forming geniuses' extreme behavioral versatility and desire to have an unusually wide array of interests and hobbies (e.g. the most distinguished scientists have strong artistic abilities/avocations compared to less distinguished colleagues, and lauded artists demonstrate avid scientific interests). Likewise, imaginativeness (a facet of openness) partially explains variation in individuals' divergent thinking and the *blind variation and selective retention* (BVSR) theory of creativity requires openness, positing that creativity emerges through being open to trying new, fallible ideas. Multicultural exposure, which indicates and enhances openness, is also highly associated with genius creativity.

Extraversion is also often positively correlated with overall creativity and genius, but meta-analytic research has since shown that the relation is driven solely by a single extraversion

facet, high self-confidence (often interpreted as arrogance or, erroneously, hostility), rather than extraversion overall (Sánchez-Ruiz et al., 2011). In fact, counter to extraversion's primary facet, sociability, geniuses are typically asocial (i.e. low interest in being social, but not hostile/antagonistic toward others) or withdrawn/internally preoccupied, with many geniuses having neither spouses nor children. Like hostility, however, extreme self-confidence can make genius' agreeableness shift. The self-confidence facet is particularly high in scientifically inclined individuals. However, "revolutionary/controversial" (i.e. rule-challenging) and scientifically inclined geniuses can also sometimes display other facets of extraversion (high risk-taking and competitiveness).

More negatively, high neuroticism is also typical in geniuses, especially for artistically inclined and controversial geniuses. While variation in divergent thought is partly explained by neuroticism-based histrionic and skeptical (paranoid) tendencies, very high neuroticism can also impede creative potential via over-fixation blocking problem-solving. Hostility (a facet of neuroticism rather than extraversion) can also make genius' agreeableness fluctuate. Similarly, psychoticism (i.e. hard-mindedness, not "madness") is also generally high in geniuses, particularly artistically inclined or controversial ones. Likewise, divergent (creative) thinkers are at a somewhat higher risk for developing some addictions and psychopathologies (e.g. depression, suicidality, psychosis, mania, anxiety), though this risk appears to be caused primarily by having high neuroticism rather than being true of all geniuses. For example, scientifically inclined geniuses, who possess higher emotional stability (i.e. lower neuroticism) than artistically inclined geniuses, are at less risk.

Researchers have also recently observed mediational relations between some geniuses (e.g. controversial geniuses) and increased dishonesty via a lack of concern over rules and the desire to creatively problem-solve in order to challenge rules (Gino & Wiltermuth, 2014).

Genius and Motivation

While explicit personality relations to genius are substantial (if complex), it is important to emphasize one critical, personality-related correlate of genius: motivation (or, perseverance, tenacity, or "grit"). For geniuses to act on and achieve their potential, it is crucial they be intrinsically motivated, with the strength to fail and back-track repeatedly (e.g. the BVSR creativity theory). Conversely, extrinsic motivation impairs genius' productivity and achievement.

Practical Implications

Though dispositional genius factors are predominantly beyond our control (possibly excluding exceptions fostering openness via exposure to novel experiences and therapeutically treating neuroticism), policy makers and citizens can optimize genius in society by promoting environmental factors such as education, emphasizing (1) acquiring a broad knowledge foundation spanning disciplines and (2) training children and adults to

actively transfer knowledge across domains. Institutions should also promote a culture of ethics-driven experimentation, accepting failure as an integral part of learning, over the current blame and threat-avoidance cultures that discourage citizens from entrepreneurial endeavors for fear of being personally challenged or failing.

See Also

Big Five
Eysenck Giant 3
Motivation (Achievement, Affiliation, Power)

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Guilt

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Introduction: What Is Guilt?

There are three fundamental features of guilt. First, guilt is self-conscious and involves self-evaluation. Second, guilt involves morals and can influence us in intrapersonal (i.e. who we are) and interpersonal (i.e. our relationships with others) ways. And last, guilt is negatively valenced and typically causes us to experience negative emotions. However, some experiences of guilt are beneficial: people who are prone to feeling guilty are better able to empathize with others and accept responsibility for negative interpersonal events more readily. There are two ways to conceptualize guilt based on how negative emotions are experienced: anxious guilt is experienced when people fear punishment as a result of doing wrong, and empathic guilt is experienced when one feels that they have done wrong to others.

Guilt can also be categorized based on theoretical origins. In Freud's psychodynamic approach, guilt has been related to the Oedipal stage of psychosexual development. Guilt was seen as occurring in the unconscious where it worked as a catalyst for defense mechanisms aimed at shielding people from experiencing the guilt produced by their inner desires. In addition to Freud's psychodynamic approach, guilt has also been linked to the Initiative versus Guilt stage of Erik Erikson's psychosocial development theory. At this stage, between the ages of 3 to 5 years, play is central and initiative is encouraged. Children who were not encouraged to express themselves freely were thought to develop guilt, which later was thought to manifest into a fearfulness of initiative in adulthood.

Guilt has also been studied from a more cognitive approach. According to this perspective, guilt is believed to occur because people feel as though they have caused harm, and these thoughts yield negative emotions. Additionally, the experience of guilt may occur as the result of feeling responsible for another's real or imagined misfortune. When people go to therapy to address their feelings of guilt, therapists typically help guide clients to become aware of and eliminate negative, dysfunctional, and automatic attitudes. This allows clients to notice when

they experience catastrophizing processes (making the worst of a bad situation) and when they overgeneralize (if one bad thing happens, more bad things can happen too).

There are four general types of interpersonal guilt: survivor guilt, separation guilt, omnipotent responsibility guilt, and self-hate. First, people may feel bad for their own good fortune because others do not experience the same fortune. This is a phenomenon known as survivor guilt. For example, someone who wins the lottery may feel guilty that others who need money do not share their stroke of luck. As a result, people who experience survivor guilt may begin self-destructive behaviors to limit their success and mitigate their guilty feelings. Next, separation guilt is described as the experience when one feels guilty for being distant or different from those who are important to them. For example, people who are physically distant from their parents or who have very different interests from their parents may experience separation guilt. The third type of interpersonal guilt is omnipotent responsibility guilt, which originates from altruism (i.e., the selfless concern for the well-being of others). Omnipotent responsibility guilt is experienced when people feel that they have a role in the success and happiness of others but have failed to meet this role. People who experience this omnipotent responsibility guilt may engage in helping behaviors toward others to alleviate their distress. The first three types of guilt discussed are other-focused, because they are based on empathy and incorporate the feelings and behaviors of others, whereas self-hate is self-focused and indirectly based on empathy. This final type of guilt is produced when people accept critical evaluation of themselves from others. Self-hate guilt is associated with negative emotions and is classified as a maladaptive form of guilt because the experience of self-hate guilt has little social benefit.

Across the Lifespan

Although the nature and strength of guilt change with development, individual differences in guilt are stable from middle childhood to early adulthood. Parenting styles are a large factor in how moral emotions develop and how likely we are to feel guilty. Researchers who study the development of guilt in toddlers measure discomfort after transgressing as a representation of guilt. Toddlers who were more likely to show greater discomfort after transgressing were also likely to respond with more fear toward risky activities. In addition to risky activities, children are highly perceptive to how their parents react and respond to the errors that children make. For instance, sons develop greater guilt when they have fathers who react particularly negatively to their errors. Although there is a strong association between feelings of guilt and how fathers respond to errors made by their sons, in general, women report greater guilt than men across all age groups as a result of being more self-reflective, attuned to morality, and greater willingness to report on their emotional experiences. Men may, in fact, experience high guilt, but may not be as open to admitting to these feelings of guilt.

Guilt and the Five Factor Model

With regard to personality, guilt may differ depending on individual differences in the Five Factor Model. People who are higher in extraversion (who are typically social, fun-loving, and passionate) are less likely to experience anxious guilt and other forms of guilt that include worry of punishment. People higher in neuroticism (who are likely to worry and are described as nervous and vulnerable) are more likely to experience anxious guilt. Lastly,

more agreeable people (who are typically helpful, good-natured, and kind) are more likely to experience empathic guilt and tend to feel strong reparative urges because they prefer to get along with others.

Guilt and the Dark Triad

The Dark Triad is a personality model that comprises three sub-clinical personality traits: narcissism, Machiavellianism, and psychopathy. People higher in narcissism have excessive self-love and tend to feel superior compared to others. People higher in Machiavellianism are typically charming, manipulative, and lacking in morality. Lastly, people higher in psychopathy are impulsive and callous. More narcissistic people are less likely to experiences all four types of interpersonal guilt. People higher in Machiavellianism and psychopathy are less likely to experience omnipotent responsibility and do not appear to feel guilty when they fail to help others, but are more likely to experience self-hate guilt. That is, people higher in Machiavellianism and psychopathy tend to experience greater feelings of guilt caused by real or imagined evaluation from others.

Similarities to Shame

Shame is very similar to guilt and psychologists have used the terms interchangeably in research. Both shame and guilt share a number of features, including similar situations, facial expressions, and interpersonal emotions. Differences between shame and guilt may lie in the type of events that produce each emotion. Shame is experienced as a consequence of failure due to personal inadequacy whereas guilt is experienced as a consequence of failure that could have been controlled. We can also differentiate shame and guilt based on whether the nature of the event is public (shame) or private (guilt). We can further differentiate shame and guilt by whether the emotions are caused as a failure of the self or as a failure of behavior. People who experience shame evaluate their global self (i.e., the general value they place on themselves) and are concerned that others are also evaluating their global self. People who experience guilt evaluate their behavior, rather than the global self, and are concerned that others are evaluating their behavior as well. Shame arises from feelings of inadequacy and can be associated with more maladaptive patterns. Thus, shame typically includes a greater degree of distress than does guilt, resulting in feelings of shrinking, worthlessness, and powerlessness, and a desire to hide or strike back. In comparison, guilt arises from distress over violation of internal conscience. Thus, guilt includes a greater degree of tension, remorse, and regret, and a desire to confess, apologize, or repair.

See Also

Big Five
Dark Triad
Guilt
Neuroticism

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Health and Personality

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Personality links to physical and mental health begin early in life and act as major contributors to long-term adjustment, coping, and wellness. Specifically, personality characteristics influence predisposition to adaptive and maladaptive coping strategies, and tendency toward clinical diagnoses. Research indicates that most personality traits simultaneously possess positive and negative influences on health. However, as personality's influence (i.e. its strength and nature) on diagnoses, well-being, and coping varies depending on the particular coping-inducing stressor(s) or traumas, the situation, or context, surrounding illness must be concurrently considered in explaining health outcomes.

Biopsychosocial Model

One model used to explain the influence of psychological factors on health is the biopsychosocial model. Originally proposed by Engel (1977), this model postulates that both psychological and social elements must be considered alongside biological factors when it comes to understanding health and illness in humans. This is a deviation from the biomedical model, which only considers biological factors. Using the biopsychosocial model, factors such as personality are considered one of the many influences that work together to impact health.

Type A, B, C, and D Personality

Type A and Type B personalities are individual difference profiles relating mainly to behavioral patterns. Type A individuals typically demonstrate increased aggression and hostility, a competitive drive, and time-related urgency (see Rosenman & Friedman, 1977). Type B personality is the lack of many of the characteristics related to Type A individuals, and is not associated with disease proneness. Belonging to the Type A group has been generally

associated with coronary heart disease-related complications. However, recently this dichotomy has been questioned, and new evidence suggests that instead of general Type A behavior patterns being harmful to health, it is specifically the hostility component that has harmful health consequences. A Type C "cancer-prone" personality was also developed to describe characteristics including negative emotional expression difficulties and excessive inhibition of emotions, though it is controversial and generally not supported in the literature. More recently, a new Type D (i.e. distressed) personality, characterized by social inhibition and an inclination for negative affectivity, has been linked to negative health consequences and increased mortality risk.

Neuroticism

Neuroticism is a personality factor characterized by emotional instability, anxiety, and negative affect. A review by Lahey (2009) shows that neuroticism is negatively associated with both physical and mental health complaints. Neuroticism has been positively related to health issues, including chronic pain experiences, asthma, greater mortality risk, mood disorders, anxiety disorders, alcoholism, reports of poor general health and quality of life, as well as increased likelihood of making unsupported health complaints. Reasons for this negative relationship between neuroticism and health can be explained by a multitude of factors, including higher physiological and emotional reactions to stress, less social support, inefficient coping strategies, increased focus on bodily states, poorer health management, as well as engaging in negative health behaviors.

Recent research however suggests the existence of "healthy neuroticism," originally proposed by Friedman, which is the combination of high neuroticism with high conscientiousness personality traits (see Turiano, Mroczek, Moynihan, & Chapman, 2013). Healthy neuroticism has been associated with beneficial health consequences, including decreased inflammation levels, and less smoking comparatively after disease diagnosis. One explanation is that increased health anxiety associated with neuroticism when paired with conscientiousness results in better health behaviors.

Extraversion/Introversion

Extraversion, the first factor in most personality frameworks, is defined as the behavioral tendency to be bold and energized by high external activity and frequent interaction with other individuals. Conversely, introversion (conceptualized by most as the opposite pole of the spectrum) is the tendency to be energized by internal thoughts and personal exploration. Jung's seminal construction of extraversion and introversion was as distinct, normal, and neutrally adaptive personality types. Specifically, the adaptiveness of extraversion/introversion for health in human and other animals is dictated by whether the environment and behavioral tendencies match. Introverted tendencies are found to be adaptive and health-promoting in unstable/changing environments that require sensitivity to stimuli while extraverted tendencies are adaptive in stable environments where sensitivity to stimuli is not required. When environmental conditions do

not match the predispositions, adaptiveness and health decrease (see Frost et al. (2013) and Thomas Bouchard's work).

Contemporary findings indicate that extraversion is a strong positive factor for many aspects of psychological and physical health. In particular, the extraversion facets of sociability (the enjoyment of engaging in social interaction) and positive emotionality are negatively related with anxiety, negative affect and mood, schizotypy, and social dysfunction. Additionally, extraversion often coincides with adaptive coping strategies (e.g. problem-oriented coping, social support) and greater well-being. However, extraversion is also a risk factor for negative health problems, as extraversion's assertiveness and experience-seeking facets highly correlate with externalizing problems (e.g. severe aggression, anger, conduct disorders) and bipolar disorder. Moreover, high extraversion is linked to narcissism and impulsivity.

Conversely, introversion shows moderate relations to anxiety, depression, chronic fatigue, and negative mental health risks such as self-blaming, shame, and low quality of life judgments. However, as preference for social interaction itself – a core component of the extraversion/introversion distinction – is not reliably related to morbidities, the inverse relation of the extraversion pole with neuroticism at least partially drives the introversion pole's relations to anxiety and negative affect-based health problems. Therefore, more explicit definitional boundaries between extraversion, introversion, and neuroticism are called for to better understand each concept's unique health effects.

Agreeableness

Part of the five- and six-factor model of personality, agreeableness – the predisposition to be socially acceptable, trusting, and considerate – is predominantly health-promoting. Agreeableness is positively associated with self-reported sense of well-being and negatively related to depression and suicidality, externalizing problems, and pathological narcissism and psychopathy. Physically, agreeableness reduces the risk of stress, high blood pressure, and other cardiologic problems. Post illness or trauma, agreeableness also promotes adaptive coping via agreeable individuals possessing greater social support. However, researchers have recently noted that most measures of agreeableness systematically examine only positive aspects of agreeableness; contemporary personality measures have since identified maladaptive components of agreeableness that result in increased risk of obsessive–compulsive personality disorder (OCPD) as well as dependent personality disorder (DPD; see Samuel & Gore, 2012).

Openness to Experience/Intellect

Openness is contemporarily recognized as a trait consisting of two conjoined but distinct concepts: openness – the tendency to seek out novel stimuli or experiences, and to be flexible and imaginative – and intellect – general cognitive tendencies related to information processing. However, most measures rarely explicitly separate the concepts. Like the previous traits, this complex super-construct has mixed effects on health. Meta-analyses indicate

that openness is largely unrelated to many clinical symptoms, sense of well-being, life satisfaction, and aggression. However, research does indicate some major influences of openness on psychological health.

Overall openness (openness and intellect conjoined) increases the risk of negative affect and mood disorders, such as seasonal affective disorder, via a reduction in neural sensitivity to serotonin (the compound in the brain that stimulates happiness and euphoria). Additionally, several facets of openness (eccentricity, perceptual dysregulation, and unusual beliefs) positively relate with DSM-IV "psychopathy". When separated, openness alone (without intellect content) positively predicts psychopathy, and schizotypal personality disorder, though to a lesser extent than neuroticism, extraversion, and agreeableness. In contrast, openness can also promote positive affect, and protect against anxiety-based disorders such that high openness prevents neurotic tendencies from actualizing into clinical anxiety and fear. Moreover, intellect negatively predicts schizotypal disorder and psychopathy. In terms of coping, openness promotes both adaptive and maladaptive strategies such as wishful thinking and escapism. This complex set of results is likely due to the current lack of measurement separation between the openness and intellect concepts.

Conscientiousness

Conscientiousness – defined as the predisposition to plan, strive, persist toward goals, and be responsible – is primarily a beneficial trait that augments good health. Specifically, conscientiousness is regularly related to primarily adaptive coping (though disengagement – a negative, maladaptive strategy – is often also employed to suppress negative thoughts). Conscientiousness is related to reduced substance use, internalizing (e.g. depression, anxiety) and externalizing problems, neuroticism-generated distress, and psychopathy. Furthermore, conscientiousness promotes sexual function and healthy living routines, increasing longevity and sexual health. Conscientious individuals are also more likely to engage in positive health behaviors (e.g. physical activity) and experience fewer health complications. Socially, conscientiousness enhances relationship maintenance, bolstering longevity and well-being through the promotion of a stable social network. However, some researchers have noted that maladaptive components of conscientiousness – also under-measured in most psychometric inventories – display the same increased risk of DPD and OCPD as agreeableness.

Honesty-Humility

The sixth factor of Lee and Ashton's HEXACO model of personality, honesty-humility is a joint trait representing the predisposition toward modesty and truthfulness. Though few physical health benefits are derived from honesty-humility, this characteristic is a positive factor involved in psychological stability. Specifically, honesty-humility enhances self-awareness, co-operation with clinicians, and health management when undergoing treatment. Additionally, antisocial tendencies such as the Dark Triad of personality (narcissism, Machiavellianism, and psychopathy; Paulhus & Williams, 2002) are reduced considerably

by honesty-humility, explaining a large portion of people's variation in these negative tendencies. Risk-seeking is also inhibited by honesty-humility. However, high honesty-humility can also promote guilt, which may become harmful if extreme.

Trait Emotional Intelligence

Trait emotional intelligence (TEI) exists at lower levels of personality hierarchies and is the self-perception of one's emotion-related facets. TEI has been shown to relate more strongly to mental health than physical health. Nevertheless, studies have found some significant influences of TEI on both physical and mental health. Higher TEI has been associated with good general health, better physiological functioning, and more positive health behaviors, and has a negative relationship with depression. Benefits of high TEI for health may include being less affected by stress, being able to repair mood, social support, and its positive relationship to internal locus of control when it comes to health.

A Valuable Avenue

Complementary to the traditionally emphasized biological and environmental determinants of health, research shows that personality factors also possess a considerable role in determining physical and mental health states, treatment recommendations and effectiveness, and long-term health outcomes. Therefore, personality offers clinicians and other health professionals another valuable avenue for explaining and predicting health.

See Also

Anxiety
Coping
Dark Triad
Extraversion
Neuroticism

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Honesty

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Conceptualization and Categorization

Honesty has been the focus of psychological research from the very beginning of the discipline until the present. As with many topics examined by psychological researchers, people have an intuitive understanding of the construct of honesty. Most dictionary definitions highlight that honesty comprises truthfulness, sincerity, and frankness and the absence of deceit or fraud. Broadly, honesty entails truthfulness, sincerity, genuineness, the absence of cheating, the absence of deception, and the absence of stealing. In addition, honesty is an aspect of the Honesty-Humility (H) dimension of the HEXACO Personality Inventory. According to the Bases, Domains, and Targets trust framework (BDT; Rotenberg et al., 2010) there are three domains of honesty: (1) cognitive/affective which comprises individuals' beliefs, feeling, as well as understanding of honesty (*honesty beliefs*), (2) behavior-dependent which comprises depending upon others to be honest (*behavior-dependent honesty*), and (3) behavior-enacting which comprises engaging in honesty behaviors (*honesty trustworthiness*). This BDT framework will be used to summarize the work on honesty.

Honesty Beliefs

When in the course of development are individuals capable of holding honesty beliefs? One of the earliest works on the topic was carried out by Piaget (1965/1932) who found that young children (≤9 years) based their judgments of lying on the severity of the act (i.e. the amount of damage caused by the "lie") rather than on the intentions behind the act. This form of *moral realism* was replaced in older children by *moral subjectivism* which involved reliance on the intentions guiding the act rather than severity of consequences of it. Contemporary researchers have found that Piaget underestimated the capacity of children and have found that young children show a substantive appreciation of the intentions behind the act. For example, it was found that even 4-year-old

children reward story characters for their positive intentions even when the characters' communication had resulted in falsehoods and caused harm.

Theory of Mind (TOM) ability is required for children's cognitive/affective honesty. In order for children to hold honesty beliefs, they need to understand that others can be motivated to cause others to have false beliefs (i.e. as an attempt to fool others). In particular, children need to comprehend the perception, intentions, and emotions of others in the service of understanding that a person can cause another to hold false beliefs. Children as young as 3 years of age have been found to demonstrate first-order TOM ability comprising the fundamental understanding that others hold distinctly different perceptions, intentions, thoughts, and emotions from their own. By acquiring this ability, it is possible for children to establish stable individual differences in holding honesty beliefs.

Research converges in showing that children at a very early age (3 or 4 years) morally condemned lying as well cheating and stealing. Nevertheless, researchers have found that those judgments are affected by cultural differences and the nature of the lie. It has been found, for example, that Chinese children are more acceptant of lying done to protect others' feelings or the reputation of the group than are North American children. Furthermore, across childhood, children increasingly evaluated others' lying in politeness situations less negatively and were more inclined to tell that type of lie (see Xu, Bao, Fu, Talwar, & Lee, 2010). Furthermore, research shows that adults from Western cultures view altruistic lies as more moral than they do selfish honesty (Levine & Schweitzer, 2014). In practice, children and adults do not typically exceed chance levels in detecting when persons lie. Children and adults often rely on erroneous cues to detect lying such as the misguiding cues of avoidant gaze and rapid limb movements.

There is evidence that individuals' honesty trust beliefs in others are modestly stable across different periods in development and therefore serve as a modest personality disposition (Rotenberg et al., 2010). Research supports the conclusion that there are consequences of that disposition. When honesty beliefs are part of a broader array of trust beliefs, then they predict psychosocial and health functioning such as prosocial behavior, low loneliness, low aggression, and good physical health.

Behavior-Dependent Honesty

Behavior-dependent honesty has been examined in a series of studies by Harris and colleagues (see Harris, 2012). These researchers presented 4- and 5-year-old children with figures depicting hybrids of animals (i.e. they had features of two animals). Mothers or others provided names for the animals. This paradigm is designed to assess whether children will depend on others as sources of knowledge. The researchers have found that children select the name of the animal provided by: (1) their mothers when the object was a complete hybrid; (2) an adult source who had a history of accuracy, (3) adults who showed consensus regarding the name and (4) when the race of informants was the same as the children's. It was found, though, that when the hybrid animal distinctly had features of one animal rather than another (it was not a complete hybrid), then children would select the corresponding name even when the mother provided another name for the animal.

The findings may be taken to suggest that young children depend on others as honest sources of information when the persons are their parent, same-race, and demonstrate a

history of accuracy and agreement with others. Nevertheless, young children demonstrate an independent grasp of reality because they do not override reality simply because of what others say. According to Harris (2012) these findings provide an insight into how children learn about the various facets of the world such as the principles of science and religion. One limitation of the work by Harris and colleagues is whether the "honesty" behavior (i.e. selecting a name) in the research is indicative of children's perceptions that persons are intentionally telling the truth as opposed to deceiving them.

The preceding patterns are further qualified by one principle. Individuals who hold too high trust beliefs in others (e.g. depend on others to always tell the truth) show an elevated risk of psychosocial maladjustment. Individuals who are too trusting deviate from social norms and are vulnerable to being betrayed. As a result they tend to experience psychosocial problems.

Honesty Trustworthiness

Is there evidence of honesty trustworthiness as a personality characteristic? Research carried out early in the disciple of psychology (e.g. Hartshorne & May, 1928) showed that there were low correlations (average .23) among 33 different tests of three types of deceit in children (cheating, lying and stealing). The findings were not supportive of the conclusion that honesty was a *highly coherent* personality characteristic. The researchers did find stronger correlations among the tests of deceit in similar situations (e.g. in tests of cheating in the school room). These findings support the notion that the relations among cheating, lying, and stealing are constrained by context and that may be viewed in contemporary theory as supporting a *trait x situation* personality approach. Individuals are prone to be dishonest but their behavior is still modified by, and depends upon, the social situation.

Children demonstrate lying and cheating when they are very young (i.e. 3 and 4 years of age). Lying and cheating increase until the elementary school year period. Lying is not consistent during the early school years (5, 6, and 7 years) but becomes modestly stable across the middle childhood years (Gervais, Tremblay, Desmarais-Gervais, & Vitaro, 2000). Research on the Honesty-Humility (H) dimension of the HEXACO Personality Inventory supports the notion that honesty trustworthiness, as well as behavior-dependent honesty, are personality dispositions.

Research shows that there is a wide range of negative consequences of dishonesty that emerges during childhood. Lying during childhood is predictive of disruptive behavior and delinquent behavior. When lying is included in broader measures of conduct disorders (cheating and stealing) then that form of dishonesty during childhood predicts criminal offending, mental health disorders (specifically depression), substance dependence, and relationship and parenthood issues in late adolescence and early adulthood.

Summary

From an early age (3 or 4 years), children: (1) show an understanding of lying, (2) establish honesty beliefs regarding others which are modesty stable; (3) morally condemn dishonesty although that varies by culture and benevolence of lying, and (4) show behavior-dependent honesty which is constructed from social interaction but constrained by physical

reality, (5) show honesty trustworthiness (lying, cheating and stealing). Also, research shows that individual differences in those behaviors demonstrate some stability across development and therefore serve as modest personality dispositions. There are a multitude of consequences of the different domains of honesty which include the psychosocial functioning, mental health, and physical heath.

See Also

Antisocial Personality Disorder
HEXACO

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Hopelessness

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What is Hopelessness?

Hopelessness is considered a cognitive risk factor in the development of depression. This construct is characterized by two core expectations: (1) that negative events will occur, or that positive events will not occur (i.e. negative outcome expectancy), and (2) that no amount of effort can influence the onset of these events (i.e. helplessness expectancy; Abramson, Metalsky, & Alloy, 1989). Essentially, the hopeless individual believes that she is powerless in changing current and future adverse circumstances.

Hopelessness Theory of Depression

According to the hopelessness theory of depression, hopelessness is a proximal and sufficient cause of depressive symptoms, such that the presence of this etiological factor is proximate and guarantees occurrence of depressive symptoms (Abramson et al., 1989). The hopelessness theory of depression was formulated to address limitations on Seligman's (1972) learned helplessness theory of depression, which posits helplessness will develop over the occurrence of repeated, inescapable aversive circumstances. While the latter theory illustrates the development and maintenance of depressogenic cognitive styles, it does not account for the individual differences in the vulnerability to hopelessness. The hopelessness theory of depression posits that it is the interaction of depressogenic inferences and negative life events that leads to the development of depression. Hopelessness is considered one link in a chain of cognitive diatheses, ultimately predisposing an individual to depression, given the experience of negative events. At the distal end of this chain is a general tendency for an individual to form three types of negative inferences regarding an undesirable event: (1) the event is stable over time (i.e. stability), (2) undesirable consequences will occur and are widespread over time (i.e. globality),

and (3) negative charactersitics are attributed to the self (i.e. internality). These three negative inferential styles are considered depressogenic tendencies, as they function as cognitive diatheses for hopelessness and ultimately for depression. Furthermore, individuals may be trapped in a self-regulatory cycle, as depressogenic explanatory styles may create less successful resolutions, thus fostering further negative beliefs. Overall, by categorizing hopelessness as a proximal cause in a sequence of etiological events, theorists place hopelessness in close proximity to the development of depression.

Several theories have been generated to resolve the limitations of the hopelessness theory of depression. First, although findings in adult and adolescent populations have supported this etiological chain of events, mixed findings were revealed in the youth literature. To resolve this issue, the "weakest link hypothesis" was proposed, stating that individuals are as vulnerable to depression as their most negative inferential style. Essentially, each of the three depressogenic tendencies is examined separately in previous research, without considering the relations between them. Thus, the most prominent negative inferential style acts as a cognitive diathesis, and would foster hopelessness in the event of a negative stressor in children. The three tendencies tend to be distinct from each other at an early age but consolidate to form a singular cognitive vulnerability in older age groups. Second, individuals differ in vulnerability to developing negative inferential styles in social and professional areas, which is referred to as the specific vulnerability hypothesis. The specific vulnerability hypothesis explains that an individual will become most vulnerable to hopelessness and depression when a negative event occurs which matches the vulnerability domain he is susceptible to. Lastly, researchers recognized that by examining cognitive vulnerability and negative events as categorical events (i.e. occurrence vs. non-occurrence), individual differences in severity of both cognitive vulnerability and negative events are lost. The titration model addresses this limitation in the hopelessness theory of depression, as it states that an individual with greater depressogenic tendencies will require a less substantial negative event for specific negative inferences to occur, and for hopelessness and depression to follow. In contrast, an individual with less cognitive vulnerability will require a more impactful negative event to produce hopelessness and depression (Abramson et al., 1989).

Hopelessness as a State or Trait

Relative stability is a required characteristic of cognitive diatheses. This has prompted investigation into the extent to which hopelessness should be categorized as a state or trait. Hopelessness may be conceptualized as both a state, when negative expectancies accompany current situations as a transitory experience, and as a trait, when negative expectancies become chronic response patterns. Most empirical findings support that hopelessness is a trait-like characteristic, as negative inferential styles are relatively stable over time. This is supported by the finding that individuals recovering from depressive episodes show elevated levels of negative inferential styles compared to groups without a prior history of depression. These findings suggest that negative inferential styles have long lasting effects, even after depressive symptoms subside. Despite this relative stability, changes in depressogenic tendencies are adaptable through treatment.

Meta-analytic findings on psychotherapy for depression indicated that therapeutic interventions (1) reduce the tendency to form negative inferences and (2) reduce hopelessness ratings post treatment.

Risk Factors of Hopelessness

While cognitive vulnerability is necessary for hopelessness, it is not sufficient to produce hopelessness in the absence of a negative event, which can be triggered by early environmental stressors. Specifically, chronic emotional maltreatment reinforces existing depressogenic causal attributions, leading to the development of trait-like hopelessness. Interestingly, negative causal attributions are formed more easily in emotional abuse than physical and sexual abuse, as the perpetrator reinforces greater depressogenic attributions in the former event. Hence, childhood emotional abuse, but not sexual or physical abuse, acts as a developmental antecedent to negative inferential styles.

Familial and peer emotional victimization also predicted negative attributional styles in adolescents, contributing to higher levels of hopelessness. The interaction of threatened self-worth and negative stressors (e.g. bullying) leads to the development of hopelessness through internalized beliefs of worthlessness and a negative sense of self within the victim's self-schema. Furthermore, victims experience an external locus of control, and a sense of helplessness regarding one's ability to alter present circumstances. Loss of control may be one mechanism through which emotional abuse and victimization contributes to hopelessness.

Other etiological factors, such as economic difficulties, unemployment, lower levels of education, and posttraumatic symptoms, have been consistently found to be associated with greater hopelessness.

Protective Factors Against Hopelessness

Protective mechanisms can prevent the development and maintenance of hopelessness. For instance, victimized adolescents with stronger future orientation were more optimistic, envisioned a better future, and were subsequently less hopeless. These findings indicate that adolescents who engaged in future-oriented thinking may disengage from ruminating about stressful circumstances at present, and may envision a future different from the present. This type of thinking acts as a protective factor against subsequent depressive symptoms and suicide-related behaviors.

The significance of social support and community is also recognized. In particular, adolescents who lived in neighborhoods with weak social networks reported higher levels of hopelessness, even when controlling for socio-economic status and depressive symptomatology. The theory of adaptive inferential feedback may illustrate how positive social support influences hopelessness. In this theory, members of the victim's social group facilitate positive evaluation of the self, world, and others through correcting the victim's negative inferential styles. This act leads to a positive sense of self and greater self-confidence for the victim of negative inferential styles and thus, hopelessness.

Personality Correlates of Hopelessness

Hopelessness is more commonly associated with certain personality traits than others. In particular, higher neuroticism, lower levels of conscientiousness, and lower levels of assertiveness and positive emotions are associated with greater hopelessness. Findings of positive associations of hopelessness and neuroticism are consistent with the literature suggesting neuroticism is positively associated with suicidal ideation in both clinical and community samples.

Measurement of Hopelessness

The Beck Hopelessness Scale (BHS; Beck, Weissman, Lester, & Trexler, 1974) is the most widely administered quantitative measure of hopelessness, demonstrating strong psychometric properties in psychiatric inpatient, outpatient, community, and cross-cultural populations. The total BHS score is a sum of item responses ranging from 0 to 20, with higher scores indicating greater frequency and severity of pessimistic beliefs and expectations of being beyond hope and help.

Psychiatric studies using the BHS demonstrated the measure has strong convergent-discriminatory properties, such that psychiatric patients scoring 9 or higher (i.e. representing moderate to high hopelessness) were 11 times more likely to complete suicide than patients scoring 8 or lower (i.e. representing normal to mild hopelessness). Moreover, moderate to high scores identified almost all patients with suicide attempts. These scores are a better predictor of attempted suicide and self-harm than other correlates, including diagnosis of depression, history of sexual abuse, and past suicide attempt.

Other measures of hopelessness include the Cognitive Style Questionnaire, developed to measure negative inferential styles, and the Kazdin Hopelessness Scale and Geriatric Hopelessness Scale developed to measure hopelessness in children and older adults respectively.

Clinical Predictors and Treatment of Hopelessness

While hopelessness is not a psychiatric disorder, hopelessness depression has been proposed as a distinct symptom profile that develops based on this chain of cognitive diatheses. However, evidence for this subtype of depression is mixed, with consistent support for distinct cluster symptoms, yet these symptoms show poor internal reliability.

Clinical guidelines suggest that hopelessness should be thoroughly assessed as it predicts number of suicidal attempts, severity of impulsive attempts, and greater wish to end one's life. Assessment of hopelessness can also influence decisions regarding appropriate treatment protocols for depressed patients. For instance, hopelessness is positively associated with greater treatment response to antidepressant medications in treatment-resistant depression.

Cross-Cultural Differences in Hopelessness

Hopelessness has been identified in cultures across the world. Overall, cross-cultural replications demonstrated positive associations between hopelessness, depressive symptoms, and suicidal ideation across genders and cultures. Interestingly, American undergraduates scored lower on the BHS compared to students of other countries and this finding was replicated with adolescent samples. Furthermore, a significant trend toward greater hopelessness scores from 1978 to 2010 was identified in American undergraduates, but this finding was not replicated in the adolescent sample (Lester, 2015).

Future Directions for Research on Hopelessness

Despite the considerable research and support that hopelessness has received, there are areas left to be explored. First, more evidence is needed to investigate the mediating role of hopelessness in this cognitive chain of events in the hopelessness theory of depression. Future studies are needed in order to clarify the role of hopelessness as a cognitive diathesis. Second, researchers have suggested that the true or false format of the BHS presents a major limitation. Some researchers have suggested changing the item response to a Likert scale system (e.g. strongly agree to strongly disagree) to increase variability in responses. Lastly, the hopelessness theory of depression exists alongside other cognitive-diathesis models of depression, which prompted researchers to question whether hopelessness and negative inferential styles are unique predictors of depression and other clinical outcomes. Furthermore, negative inferential styles have been considered conceptually similar to Beck's dysfunctional attitudes and negative self-schemata, and Nolen-Hoeksema's rumination, as outlined in the response styles theory. Future research should investigate whether these constructs may be interchangeable.

See Also

Depression
Self-Efficacy

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Hostility, Personality Correlates of

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Hostility is associated with a host of phenomena, such as anger, aggression, and cynicism, etc., and as such, varying definitions of hostility have been proposed. Previously, hostility was conceptualized as an attitudinal construct characterized by the dislike and negative evaluation of others, as well as the motivation for aggressive and often vindictive behavior. Currently, hostility is regarded as a more multifaceted construct, comprising cognition, affect, and behavior.

The cognitive component of hostility is often viewed as the main characteristic aspect of the hostility construct, and it constitutes having negative beliefs about others. As such, there is often a high amount of agreement with statements that describe others as untrustworthy, undeserving, and immoral. Resulting from these cognitions are attributional biases, aptly named hostile attribution bias, wherein the actions of others are construed as involving aggressive intent. This is often then used as justification for the hostile person's own antagonistic actions. While hostile attribution bias is directed toward specific persons whose actions are antagonistic toward oneself, cynicism involves negative beliefs about human nature in general, and may also result from the cognitive component of hostility.

The affective component of hostility includes anger, annoyance, resentment, disgust, and contempt. Several researchers maintain that the angry affect is a consequence of prior hostile cognitions. The behavioral component of hostility is composed of aggression. Verbal aggression and other forms of antagonistic behavior are more frequent than overt physical aggression and can be expressed in subtle ways that do not violate societal norms. The cognitive, affective, and behavioral aspects of hostility are undoubtedly associated with each other, but it is not necessary for them to occur together. For instance, cynicism, anger, or antagonistic behavior can be present in the absence of the other two.

Scales Measuring Hostility

Several methods have been developed to measure hostility, including interviews and self-report surveys. The Buss-Durkee Hostility Inventory, one of the most widely used self-report surveys, was developed by Arnold H. Buss and A. Durkee in 1957. The BDHI measures a number of various subhostilities that make up hostile and aggressive behaviors. These subhostilities include Assault, Indirect Hostility, Irritability, Negativism, Resentment, Suspicion, and Verbal Hostility. The BDHI is widely used although some research seems to indicate that it may not assess a unitary hostility construct. The successor of the BDHI is the Aggression Questionnaire (AQ) which consists of four scales that measure Anger, Hostility, Verbal Aggression, and Physical Aggression. With this, it was found that men had higher scores on Physical Aggression, Verbal Aggression, and Hostility, but not on Anger.

Another frequently used inventory is the Cook-Medley Hostility Scale, developed by W. W. Cook and D. M. Medley in 1954, which was originally developed to assess teachers having difficulty getting along with their students. Beginning in the 1980s, the Hostility Scale was used to assess the relationship between hostility and health outcomes. Items on the Hostility Scale are grouped into six subscales, including Hostile Attributions, Cynicism, Hostile Affect, Aggressive Responding, Social Avoidance, and Other. The Hostility Scale seems to be an adequate predictor of anger and hostility-related changes during frustrating situations, although not of violence potential. In addition, subsequent research indicates that the Hostility Scale is consistently correlated with characteristics outside the conceptual definition of hostility, such as anxiety and depressive symptoms.

A relatively recent technique for rating hostile behavior was developed in the form of a structured interview. The Interpersonal Hostility Assessment Technique (IHAT) rates hostile behavior on the basis of the style, rather than the content, of responses. These categories of response include direct challenges to the interviewer, indirect or more subtle challenges, hostile withholding of information or evasion of the question, and irritation. The IHAT has been found to be fairly reliable, correlating with other measures of hostility and being associated with expressions of disgust and anger.

Hostility and Broad Personality Frameworks

A common conceptual framework is important when defining specific dimensions of a particular trait and the part it plays in the psyche. Uniform measurement evaluation techniques are also important for establishing the similarities and differences among scales and between hostility and other traits. The Five Factor Model (FFM) of personality offers this opportunity by providing a common organizational framework to explain hostility, and its association with other traits.

Within the FFM, both anger and hostility are positively associated with Neuroticism, with correlations ranging from 0.2 to 0.6, and negatively associated with Agreeableness, with correlations ranging from −0.3 to −0.4. An overlap in content has been found between measures of the FFM and measures of trait anger and hostility. For instance, a facet of the Neuroticism dimension includes Hostility, while two facets of the Agreeableness

dimension are Trust and Compliance, which relate to the cynicism and hostile attribution bias defining hostility. In fact, the trait of Agreeableness has been traditionally visualized as a spectrum of Friendliness/Hostility. In a similar manner, the more recent six-factor HEXACO personality model also finds hostility to fall within low levels of Agreeableness. This is logical since a facet of Agreeableness from the HEXACO model includes Gentleness, where low scorers are critical in their evaluations of others.

The Interpersonal Circumplex (IPC) also has strong ties to hostility. One of the dimensions in the IPC is friendliness versus hostility, while the other is dominance versus submissiveness. The IPC can describe specific social stimuli, social responses, features of the social environment, and individual differences in social behavior. Personality psychologists Paul D. Trapnell and Jerry S. Wiggins suggested in 1990 that the friendliness versus hostility dimension can replace Agreeableness in the FFM, while the dominance versus submissiveness dimension can replace Extraversion due to their close correlations. With this, the IPC provides a useful framework with well-established assessments for validating hostility scales when combined with the other three FFM traits. Personality researchers Timothy W. Smith and Linda C. Gallo in 1990 found that Trait Anger, Hostility, Verbal Aggression, and Physical Aggression from the AQ correlated with the cold and unfriendly style of IPC hostility. In addition, Trait Anger and Hostility were more closely related to neuroticism than were Verbal and Physical Aggression.

The IPC can be used to explain the development of a hostile interpersonal style. For instance, from a developmental perspective, individuals may model behavior they had first observed in their parents or guardians during childhood. Moreover, they may internalize, such that the development of representations of self, others, and relationships forms the basis of generalized interpersonal expectancies. Finally, there may be introjection insofar as people treat themselves in ways they were treated by key developmental figures. This is closely related to attachment theory where attachment styles such as secure, anxious, and avoidant are influenced by parenting styles. Over time, these transactional cycles would contribute to continuities in personality and even foster a health-relevant trajectory. For instance, continuous negative social interaction sequences would promote exposure to unhealthy social contexts such as isolation or conflict.

Hostility and Health

Hostility has been consistently associated with coronary heart disease (CHD) and premature mortality in both men and women, and it has been suggested as a risk factor. Suggested mechanisms that explain this association include the Psychophysiological Reactivity Model. The model hypothesizes that hostility contributes to the risk of CHD through exaggerated cardiovascular and neuroendocrine responses to potential stressors, such as increased blood pressure, heart rate, and adrenaline. However, recent research has suggested that an impaired physiological recovery from stressors may contribute to risk factors as much as heightened reactivity.

Another model explaining this relationship is the Psychosocial Vulnerability model, where hostile persons report greater levels of interpersonal conflict and stress, along with lower levels of social support. These psychosocial vulnerabilities could mediate the

associations between hostility and health where hostile individuals would be exposed to more of these vulnerabilities than non-hostile individuals, resulting in poorer health. This may lead to a behavioral pattern that in the long run would further increase conflict and decrease support.

Finally, it has been suggested that more hostile individuals have a less healthy lifestyle with more drinking and smoking, resulting in the association with subpar health. In order to reduce health risks, the early improvement of physical health is recommended.

Treatments

With the incorporation of interpersonal theory, early prevention measures are also recommended, with prevention of aggressive behavior and poor peer relations in childhood and adolescence. A variety of cognitive and behavior interventions can also be used to reduce anger and aggressiveness, where the average cognitive therapy recipient is better off than 76% of untreated subjects. It has been found that this was as efficient as blood pressure medication in reducing cardiovascular responses. Cognitive therapy was also found to result in anger reductions in abusive parents. According to the interpersonal theory, this will also have profound effects on the child where otherwise, the child would imitate the parent in their hostile interactions.

See Also

Aggression, Personality Correlates of
Anger
Health and Personality

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Impulsivity

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Impulsivity is the tendency to act without forethought or consideration of potential consequences. Impulsive drives or actions can be seen as either non-functional (i.e. no intended benefit) or functional (i.e. with intended benefit). Non-functional impulsive actions can result in risky or inappropriate behaviors that may harm the individual or those around them (e.g. diving into a lake without first checking the depth); conversely, functional impulsive tendencies may be viewed as bold or courageous (e.g. diving into the same lake to save a drowning friend). Regardless of the functionality, impulsivity involves three separate constructs: the tendency to act without forethought, the focus on seeking novelty, and an emphasis on short-term over long-term benefits (Fino et al., 2014).

Impulsivity is associated with numerous brain areas, but has a specific association with the prefrontal cortex (PFC), which is the primary area of the brain involved in executive functioning, or the ability to plan, organize, and execute daily life activities. Lesions found in the nucleus accumbens and/or amygdala, associated with feelings of pleasure and the fight/flight response respectively, are associated with increased preference for short-term, immediate rewards. Damage to the PFC and/or right inferior frontal gyrus areas of the brain has been associated with behavioral disinhibition and impulsivity.

Theoretical Frameworks

Executive Functioning/Inhibitory Control

Impulsivity is often viewed as a deficit or difficulty with executive functioning and/or inhibitory control. Executive functioning is a set of supervisory mental functions that control cognitive, emotional, and behavioral responses. These executive functions include abilities such as working memory, reasoning, problem-solving, planning, and, most related

to impulsivity, inhibitory control. Inhibitory control is the ability to override a prepotent response in favor of a more adaptable or appropriate response (e.g. when playing "Simon Says," it is necessary to resist the urge to respond when the command does not start with "Simon says"). Impulsivity has been linked to a deficit in inhibitory control, where lower levels of inhibitory control are due to a slower inhibitory response, rather than a faster prepotent response. More specifically, those with impulsive behaviors tend to have a harder time stopping a behavior once it has started than preventing the behavior from beginning.

Self-Control

Self-control is the ability to control one's emotions and desires, especially when encountering challenging situations (e.g. seeing an ex-boy/girlfriend for the first time after a difficult break-up and remaining cordial). Individuals may demonstrate high levels of self-control which is related to a number of positive outcomes (e.g. academic achievement, psychological adjustment), or low levels of self-control which, as expected, is more closely related to negative outcomes (e.g. eating disorders, substance abuse, etc.). Low levels of self-control are also strongly related to impulsivity, as well as general impulsive behaviors (Hofmann, Friese, & Strack, 2009). Essentially, those who are low in self-control tend to demonstrate higher levels of impulsivity.

It has also been suggested that self-control can be viewed as a muscle (e.g. Baumeister, Vohs, & Tice, 2007), in that the more self-control is used, the more "tired" it becomes, thus increasing the amount of uncontrolled or impulsive behaviors. An example of this temporally depleting self-control would be the very common experience of coming home after a long day at work, during which eating habits were rigorously controlled, and eating an entire box of cookies. As self-control resources were "used up" during the day, late-night cravings become more challenging to overcome.

The abandonment of self-control can also be triggered by some form of failure. For example, in a phenomenon known in the eating literature as the "what-the-hell effect," people who are regular dieters who consume a "bad" food (e.g. a milkshake) will then subsequently consume more "bad" foods than their non-dieting counterparts who consumed the same milkshake (Herman & Mack, 1975). This suggests that impulsive behaviors may occur when self-control does not seem beneficial, or that it no longer matters.

Measures of Impulsivity

The measurement of impulsivity in individuals is typically done by health care professionals (e.g. psychologists). There are two primary means to gain an understanding of an individual's level of impulsivity: personality measures and performance-based measures. Personality measures typically involve rating scales completed by the individual him/herself or by a person familiar with the individual and his or her typical behaviors (e.g. parent, teacher). Performance-based measures examine an individual's actual performance on a task designed to test his or her impulsivity, rather than relying on paper-and-pencil answers to questions.

Personality Measures

Personality assessments or tests are very commonly used to examine trait (i.e. core personality characteristics) and state (i.e. current levels of functioning) impulsivity. Some of the more common assessment measures include the Barratt Impulsiveness Scale, Eysenck Impulsiveness Scale, Dickman Impulsivity Inventory, and the Lifetime History of Impulsive Behaviors.

Barratt Impulsiveness Scale

This scale is one of the oldest and most widely used impulsivity measures, consisting of 30 items and three subscales: Attentional Impulsiveness, Motor Impulsiveness, and Non-Planning Impulsiveness. These scales are further divided into six factors: Attention (focusing on the task at hand), Motor Impulsiveness (acting without thinking), Self-control (ability to plan and think carefully), Cognitive complexity (ability at challenging mental tasks), Perseverance (a consistent lifestyle), and Cognitive Instability (thought insertion and racing thoughts). This measure is frequently used with an adult population.

Eysenck Impulsiveness Scale

This questionnaire contains 54 yes/no items, consisting of three subscales: Impulsiveness, Venturesomeness (awareness of the potential consequences of an action, but acting anyway), and Empathy (care or concern for others). This scale has been normed for 16–87 year olds.

Dickman Impulsivity Inventory

This scale utilizes Scott J. Dickman's theory that there are two types of impulsivity: functional impulsivity (quick decision making when it is optimal, such as catching a falling vase) and dysfunctional impulsivity (quick decision making when it is not optimal, such as buying a chocolate bar at the supermarket checkout). It consists of 63 items divided between these two constructs, and is unique in that a version to measure impulsivity in children has been developed.

Lifetime History of Impulsive Behaviors

This measure is a 53-item questionnaire designed to assess the lifetime prevalence of impulsive behaviors, rather than short-term impulsive tendencies, as well as the potential distress and impairment associated with these behaviors. This scale assesses six dimensions: impulsivity, sensation seeking, trait anxiety, state depression, empathy, and social desirability. It also includes scales to assess clinically significant impulsivity, non-clinically significant impulsivity, and distress/impairment of the impulsivity.

Performance-Based Behavioral Assessments

Performance-based assessments allow for an objective, observable measure of impulsivity, and while they are not sufficient diagnostic measures on their own, allow for a larger picture of the impulsivity difficulties. These include paradigms such as the marshmallow test, the Stroop task, Go/No-go tasks, and the Continuous Performance Task (CPT).

Marshmallow Test

This test, more formally known as the "delay of gratification paradigm," was developed in the 1960s to assess the self-control of preschoolers. A single marshmallow is placed in front of the child, and they are informed that if they wait to eat the marshmallow until the experimenter returns to the room, they will be given a second marshmallow, both of which can then be eaten. Follow-up studies determined that those who were able to wait for the second marshmallow attained higher educational achievement, had more positive social and coping skills, and many other positive factors.

Stroop Task

This task is designed to measure an individual's ability to inhibit a prepotent response. First, individuals are presented with a stimulus and asked to read a list of written color names printed in colored ink. They are then presented with a different stimulus page which has written colored names printed in different colored ink. Individuals are asked to name the color of the ink that the word is printed in, rather than reading the word. Ability is measured based on a comparison between the time to complete the first list and the time to complete the second list, and the number of mistakes made in each.

Go/No-Go Tasks

These tasks are used to assess sustained attention and inhibitory control. The participant is trained to respond a certain way to a stimulus (e.g. pressing a certain key on a keyboard); this is the "go" stimulus. On some trials, a designated "stop" stimulus will appear right before the "go" stimulus, signaling to the participant that they should inhibit their response to the go signal. Performance is measured based on the number of correct inhibited responses, and occasionally the reaction time to the stop signals.

Continuous Performance Task (CPT)

The CPT is a neuropsychological task used to measure sustained attention, which is frequently related to distractibility and impulsivity. The CPT involves start and stop signals, just as in the Go/No-Go task, and is specifically made to be long, repetitive, and essentially "boring." This measure assesses the participant's ability to stay focused and attuned during menial tasks.

Connection to Psychological Disorders

Impulsivity is a trait that is seen throughout a number of disorders and is frequently identified as a symptom in many child and adult diagnoses. Pertinent examples include Attention-Deficit/Hyperactivity Disorder, Impulse-Control Disorders, Substance Abuse, and Bipolar Disorder.

Attention-Deficit/Hyperactivity Disorder (ADHD)

ADHD is a psychological disorder characterized by symptoms of inattention, hyperactivity, and/or impulsivity. ADHD is among the most common childhood disorders and is associated with numerous life-long difficulties, including reduced academic achievement and performance, social rejection, and accident-related injuries. It is currently categorized into three subtypes: primarily inattentive, primarily hyperactive–impulsive, or combined type.

Symptoms of impulsivity are very common among those with ADHD, and include behaviors such as blurting out answers to questions, difficulty waiting their turn, interrupting others' conversations, and leaving their seat in situations where staying seated is expected (e.g. in a classroom).

Impulse-Control Disorders

These disorders fall into a group known as Disruptive, Impulse-Control, and Conduct Disorders, and are characterized by problems in the self-control of emotions and behavior. The three disorders that are most specifically related to impulsiveness are Pyromania (the inability to resist the urge to intentionally start fires), Kleptomania (the inability to resist the urge to steal, typically without a need for the item), and Other Specified/Unspecified Disruptive, Impulse-Control, and Conduct Disorders (a broad category that generally incorporates individuals whose behaviors violate the rights of others or who demonstrate significant conflict with societal norms or authority figures).

Substance Abuse

Substance abuse is characterized by continued use of a particular substance or group of substances despite significant physical, psychological, social, or financial problems resulting from the substance use. Impulsivity is a major component of substance abuse disorders. Individuals with substance abuse problems often have a preference for instant gratification and demonstrate lowered inhibitory control, which makes appreciating future consequences and overcoming environmental pressures (e.g. peer pressure) difficult. This combination not only makes initial substance use more likely, but also increases the chance of escalation into addiction and abuse. Similarly, people who are higher in impulsivity are more likely to stop treatment prematurely, have greater cravings during withdrawal, and to experience relapses than those lower in impulsivity. It is also important to note that substance abuse can work reciprocally with impulsivity, such that prolonged substance use can increase impulsivity, and vice versa.

Bipolar Disorder

Bipolar disorder is characterized by periods of elevated mood (usually referred to as mania or hypomania) followed by periods of depression. Impulsivity is a typical symptom of a manic or hypomanic episode, as individuals experiencing these episodes are often easily distracted, have "flight of ideas" (racing thoughts), and have excessive involvement in activities with potential negative consequences (e.g. sexual indiscretions, risky business involvements). It has been suggested that those with bipolar disorder have higher personality-based impulsivity, which provides a potential link between this disorder and substance abuse and suicide attempts.

See Also

Risk Taking
Self-control
Self-regulation
Sensation Seeking

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Intuition

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Definition

Intuition is a non-deliberative mode of thinking, based on knowledge stored in long-term memory, mainly acquired via associative learning. The input is processed automatically, holistically, and without conscious awareness. The output enables fast and affectively charged decision-making, which is often expressed as a "gut feeling," but cannot be further explicitly articulated.

It is necessary to distinguish intuitions from closely related terms such as instincts, insight, and reinvestment. First, in contrast to instincts, intuitions are based on learned representations and not on evolutionary shaped responses. Second and in contrast to intuition, insights are achieved by conscious processes, i.e. by solving a mathematical problem which involves systematic reasoning. Finally, the construct of reinvestment is considered in relation to two components: the motor component, the stable tendency of a person to manipulate explicit knowledge by working memory in order to control body movements during motor output, and the cognitive component, the tendency to monitor decision processes and ruminate about past poor decisions. When drawing comparisons with intuition, reinvestment is not solely linked to cognition but also relates to the motor component and also occurs mostly in stressful situations. Research results indicate that deliberative persons have a higher reinvestment tendency than intuitive persons, thus suggesting an inverse relationship between reinvestment and intuition.

Central Theories

The theoretical background of modern intuition research is mainly based on dual-processing theories which aim to describe human information processing in terms of two distinct systems. These theories have evolved across many academic disciplines and applied fields and

although they have differing names and labels, they are structurally similar. Dual-processing theories have a common structure which differentiates between one system that is characterized by its automaticity, non-consciousness and speed (usually referred to as reflexive or System 1) and a second, slower, conscious and deliberative system (usually referred to as reflective or System 2). Within the dual-processing framework, intuition is considered to be part of System 1, which is also seen as associative and older in terms of evolutionary development. The majority of human cognition and behavior is assumed to build on a combination of the two systems. However, there are still many debates between dual-processing theorists which include whether there is a clearly distinctive activation based on certain variables, a parallel processing or first an automatic and second, only when necessary, a deliberative activation, i.e. if someone realizes that his/her intuitive reaction is not sufficient and therefore invests more cognitive capacities.

Attributes of Intuition

According to most conceptualizations, intuitions include the following four characteristics: First, intuitions are considered to be non-conscious information processes that are consequently not directly observable nor explicitly accessible. Second, intuitions are experienced in a holistic manner which means they are built on non-serial overall heuristics and associations. This aspect underlines the strong relationship between intuitions with one's individual learning experiences. Third, emotions seem to play an important role within intuitive judgments, which on the subjective level is often expressed as a (gut) feeling. Furthermore, neuroscientific research showed activation patterns in affect-related brain areas during intuitive decision-making, which suggests a link between intuition and affect. Finally, a key characteristic of intuitions is automaticity. In opposition to analytical and reflective cognition, the outcome of intuitions is easily and almost instantaneously accessible to the individual.

Types of Intuition

Following the consideration that there are distinctive divisions within System 1, there is also the assumption that intuition itself is not a unitary construct. Therefore, initial classifications have been proposed to identify different types of intuitions. For example, Pretz (2011) proposed a model which differentiates between affective, holistic, and inferential types of intuition which are related to the attributes of intuition above.

Effectiveness of Intuition

A growing body of research has assessed under which conditions intuitive decision-making might be effective or even superior to deliberative judgments. In contrast to former conceptions, there is increasing empirical evidence that intuitions can play a vital role in successful decision-making. As a result of their fast and heuristic nature,

intuitions can demonstrate their strength particularly in situations of uncertainty, in complex environments and under time pressure. These results are endorsed by various fields of research such as sports and management. Conversely, as they are based on learning processes, intuitions can also be misleading, i.e. in situations where the future may be significantly different from the past. Ultimately, successful decisions may involve both intuitive and deliberative decision-making which depend on various factors. One of these factors that received particular attention among scholars is expertise. Evidence suggests that intuitions tend to be relatively more effective when decision-makers have a high level of experience in a given domain. They could build up relevant and exact schemas which are mental structures categorizing information. It can be suggested that there is a U-shaped relationship between the availability of intuition and level of expertise. For example, at the first stage of the relationship, a novice's intuition relies on general and simple information processing which therefore promotes higher levels of intuition. In the next stage and with further learning, intuition becomes less available for the former novice because of the increase in rule-based knowledge. Finally, at the opposing end of the U, intuition becomes important again at the expert level, as the former novice has acquired fluent domain-specific knowledge and substantial experience. This kind of expert-intuition is considered as qualitatively different from the first stage and is characterized by extensive domain-specific knowledge, pattern recognition, and automaticity. Additionally to the level of expertise, research suggests that people differ inter-individually in their preferences to rely on intuitive judgments. Intra-individually, people tend to rely relatively more on intuitive judgments in situations of positive affect.

Methodology

As a result of its unconscious nature, empirical research on intuition has been rather limited. Researchers across a range of domains attempted to tackle this problem by developing a broad variety of very different methodological approaches and study designs. This aimed to access, describe, and measure intuition and its occurrences and outcomes in order to gain a comprehensive understanding of the construct. In contrast to the relatively large consensus on the main features of intuition, there is less agreement on the best approaches to encapsulate the concept of intuition empirically. In part, the diverging views on methodological approaches might be rooted in the diversity of the academic fields involved in intuition research. The typically preferred methods differ across disciplines which may also shape the individual foci that the researchers lay on specific aspects and types of intuition. Key methods to assess intuition in laboratory and/or field-based settings include direct instruction, self-report questionnaires, retrospective reports, incubational methods, scenario-based, neurophysiological approaches, and affective priming. When assessing different types of intuition, researchers developed self-report instruments focusing on specific facets of the construct. For example, Pretz et al. (2014) introduced the Types of Intuition Scale (TIntS), a self-report measure which assesses individuals' preferences for three types of intuition: holistic, inferential, and affective.

Fields of Application

Comprehensive knowledge on how intuitions function and when they are useful carries great potential for successful decision-making. As a result, the construct of intuition is examined across various contexts of application including everyday life, education, finance, sport, and global politics. For example, intuition seems to play a crucial role in professional sports where automaticity and efficient perception-action-emotion-cognition couplings are needed to enable fast reactions and produce successful performance under pressure. Also in sports, but not exclusively, there is increasing evidence for the take-the-first heuristic, which describes that when the individual has some expertise in the task, then the first intuitive option that "comes to mind" is usually the best one and any further generated option decreases in quality. In general, research on intuition is not limited to a specific domain but it is rather a global construct which can be applied to numerous contexts and fields of research. On the other hand, expert-intuition acquired in one specific domain, i.e. in tennis, is not considered to be automatically transferable to another domain, i.e. to handball or management decisions, which highlights the need for specific training and experience in a specific domain to develop one's intuition in this particular domain or field of expertise.

Critical Review

In the past, the construct of intuition had been considered as unreliable, unscientific, and sometimes even as spiritual mystification. In recent years, the construct has received increasing attention among scholars across many disciplines. To examine how intuitions work and to learn about their strengths and weaknesses has been the target of extensive studies. By now, there is general consensus on the importance of intuition in human decision-making, the main features of the construct, and the need for broad research on intuition. However, there is conflict surrounding methodological approach to intuition research. The common study designs, for example self-report questionnaires, might not be sufficient as it seems debatable whether a cognitive process that is considered as rapid and without conscious awareness can be measured in this way. Similarly, brain mapping might not be enough as other physiological factors are presumed to influence intuition as well, such as skin conductance and heart rate variability. Despite recent methodological advancements, i.e. more sophisticated designs, mixed-method approaches and the assessment of types of intuition, the measurement of the construct remains one of the biggest weaknesses in current research. However, the latest research from cognitive psychology examining the take-the-first heuristic has proven itself as a good starting point in terms of a clear operationalization of intuition that can be further connected to brain, physiological, and self-report measures.

Outlook for Future Research

Future research can aim to build on the convergent understanding of intuition and follow previous findings on the importance of the construct and the potential benefits of intuitive decision-making. A potential starting point for researchers would be to clarify

the definition and terms of intuition as this is currently still an issue within research. In order to address this issue, the wording proposed above provides a clear definition of intuition and may serve as a common working basis for future research. Nevertheless, it seems crucial to proceed with the different types of intuition in order to enable comprehensive research findings on the topic. It could be suggested that the biggest challenge still remains at the methodological level, with the measurement of intuition which is essential to underpin the construct. Therefore, further methodological insight is clearly demanded. Additionally, future studies should focus on the identification of different types of intuition in order to gain a deeper understanding of the underlying processes and facets of the construct. In summary, research and knowledge on intuition have great potential for a variety of applications and could really make a difference on the way to successful decision-making.

See Also

Cognition and Personality
Emotional Intelligence, Correlates of
Impulsivity
Unconscious Processes

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Policy Researcher and Educator: Originally it was Independent Researcher and Policy Analyst

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Mood

Mood refers to sporadic low to medium intensity states, lasting over minutes to days, which indicate different types of positive and negative affect. Examples of moods include happiness, surprise, anger, fear, and sadness. Moods are often manifested through physiological signals, including increased heart rate, perspiration, and behavioral signals like smiling, crying, and shouting. Moods are distinguishable from motivation since motivation, only, is debatably associated with goals. While the experience of a fearful mood, for instance, might cause an individual to seek help, the same emotion may be felt without the presence of such or any other goals. Moods are also distinguishable from emotions. Specifically, moods are not always caused by nor focused on a specific object or event, while emotions are caused by a specific object or event and focused on that object or event.

A common theoretical problem in assessing mood states is there are often no clear labels, definitions, or boundaries across the literature on mood states for different affects. For example, anxiety and other states are simultaneously referred to as emotions, mood states, or Big Five traits across scientific literature and lay language. This issue poses difficulties in comparing research findings and integrating literature, but is being overcome using data reduction techniques and a broad range of validity studies.

Regardless, the significance of understanding mood states for health professionals, researchers, students, and laypeople in the contexts of personality and individual differences is three-fold. First, traits of personality are related and viewed as aggregates of mood states in different situations. In other words, individual Big Five personality traits (i.e. extraversion, conscientiousness, agreeableness, neuroticism, and openness) influence how and how often different individuals experience moods. Second, mood states influence behaviors, regardless of individual traits. For example, the experience of anxiety may impair an individual's public speaking performance, independent of that individual's knowledge and ability, while sadness may influence an individual's interpersonal relations at a place of employment, regardless of that individual's personality or charm. Third, the

contexts in which mood states occur are important for understanding diagnostic mental health classifications. In most cases, feeling sadness after being married or excitement after failing a test deviates from normal emotionality and indicates potential mental disorders.

Theories on the Structure of Mood States

There are two popular ways of understanding the structure of mood. One dominant conclusion is that mood states are universally composed of two robust factors: positive affect and negative affect. Developed by Watson and Tellegen in 1985 and known as the Positive and Negative Affect Schedule (PANAS), this structure is demonstrated across all major lines of research on affective structure, as well as studies on self-reported mood, words used to describe them, and facial expression analyses. The PANAS describes affects as high and low positive, as well as high and low negative. Examples include pleasant mood states like happiness and excitement; mood states of engagement like surprise, anger, and arousal; mood states of disengagement like quiet and calmness; and mood states of unpleasantness like sadness, anxiety, fear, and irritability.

Another dominant conclusion describes mood states in terms of three dimensions: energy versus fatigue to describe positive affect, tension versus relaxation to describe negative affect, and happiness versus unhappiness, which is not linked to physiological arousal, but is a purely psychological state. This method of understanding mood states was developed by cognitive psychologists who were critical of the PANAS, like Matthews, Jones, and Chamberlain in the 1980s and 1990s, and Schimmack and Grob in the year 2000. Instruments used to measure the three mood dimensions include the UWIST Mood Adjective Checklist by Matthews and company and the Multidimensional Mood Questionnaire (MDMQ) by Steyar, Schwenkmezger, Notz, and Eid.

Although numerous studies have successfully replicated positive affect and negative affect as the basic dimensions of mood, other studies critique their definitions and universality. For example, some cross-cultural studies showed that even though expressions like "I feel bad" or "I feel good" can be found in all languages, some languages have no specific equivalent words for "fear" and "anger." Research on mood states also declined at the beginning of the Big Five era and the popularity of dispositional approaches in the early 1990s. Despite the decrease in studies on mood states, there has been an increase of research on topics like affect in human performance and individual differences in abilities to identify and manage moods.

Individual Differences in the Experience of Mood

A great deal of research suggests that moods are interpreted as and explained by personality traits. Studies that influenced and were influenced by the works of Watson and Clark examined longitudinal stability of measures of mood. They found that individuals' moods are relatively consistent overtime. Other studies found, for example, correlations between negative mood and neuroticism, as well as positive mood and extraversion. A converse theoretical position holds that a substantial percentage of mood variance

cannot be explained by personality traits. An example includes the works of Eysenck and Eysenck, who expected phlegmatic individuals to display the least variability in mood states and choleric individuals to display the most erratic mood states. Phlegmatic individuals refer to those identified as being low in both neuroticism and extraversion, while choleric individuals are those identified as being high in both neuroticism and extraversion. A conciliation of the two positions is that high neuroticism, alone, is the best predictor of mood variability.

Irritability

Irritability is defined as a normal, yet adverse negative affect that can be triggered by a range of daily inconveniences, including relational disagreement, or conflict, physical pain, noise, hunger, or even heavy traffic. Most people experience the behavioral manifestations of irritability at least occasionally during the life course. Such responses lie between the spectrum of moods of displeasure and disengagement and may encompass observed or unobserved manifestations of annoyance, anger, impatience, and temper outbursts. Synonymous terms include moodiness and irritable mood. Chronically high levels or frequent episodes of irritability are associated with a range of underlying medical/physical or mental disorders in children, adolescents, and adults. One of the leading authorities on irritability and its associated impacts is the American Psychiatric Association (APA), which has included irritability in depressive, generalized anxiety, and disruptive behavior disorders diagnoses of the Diagnostic and Statistical Manual of Mental Disorders (DSM) since 1952. According to the APA and other authorities on the subject, severe irritability has received little attention in research. However, its prevalence and impacts on healthy and ill populations, vis-à-vis relationships and overall quality of life, prompt the need for further research on its consequences and treatments.

Similar to the issue of mood state definitions, research on irritability is often hindered by the lack of homogeneity in its definitions. Within the medical profession and lay language there is also a lack of differentiation of the term "irritability" from such terms as "anger," "aggression," and "hostility." The DSM is no exception with its definition of irritability as persistent anger, a tendency to respond to events with anger outbursts or blaming others, and an exaggerated sense of frustration over minor matters. The definition concern emphasizes the need to consider irritability in terms of its emotional, behavioral, physiological, and cognitive aspects.

Physical Illness and Irritability

There are four different pathways that link irritability with physical illness.

First, irritability can be induced by a physical illness. This is the case in serious acute illnesses, which interrupt an individual's daily life and cause major inconveniences like incapacity, dependency, and personal losses. Similarly, experience of a chronic illness induces a variety of unique affective responses and is associated with irreversibility and potential disability. Irritability can also represent a psychological response to disability,

hospitalization, or a medical or diagnostic procedure. For example, prenatal diagnostic procedures like ultrasound examination and amniocentesis significantly increase irritability. Additionally, irritability, like other forms of negative affect, can be involved in the development of a physical illness. For instance, hostility is related to an increased risk of cardiovascular diseases, like arthrosclerosis and coronary heart disease, while high levels of irritability influence organic gastrointestinal disorders and functional gastrointestinal disorders. Irritability is also a significant predictor of unhealthy behaviors like excessive alcohol consumption and smoking. Last, irritability is a characteristic of many physical illnesses, including Cushing's syndrome, an endocrine disease. It is also present in individuals with eating disorders and various types of skin disease.

Mental Disorders and Irritability

Irritability is a mood dimension that cuts across psychopathology and spans the internalizing and externalizing divide. Commonly referred to as mood, irritability is present in the DSM and the World Health Organization's (WHO) International Classification of Diseases (ICD-10) 10 criteria of bipolar disorder. Irritability is present in criteria for major depressive disorders in both the depressive and manic phases, as well as cyclothymia and dysthymia in children. The only formal modification of adult criteria for children is recognition by the DSM-IV that irritability is a significant feature of child and adolescent depression and an expression of distress. In general, specific criteria for major depression of adults are similar in clinic-referred child and adolescent samples, but irritability may be substituted for depressed mood. Moreover, irritability is present in a range of anxiety disorders. While it is considered a mood symptom, it is also a main constituent of temper outbursts characteristic in oppositional defiant disorder (ODD), a disruptive disorder. Irritability is also associated with obsessive–compulsive disorder, schizophrenic disorders, personality disorders, and organic mental disorders like temporal lobe epilepsy. It is also a characteristic of alcohol intoxication and withdrawal.

Treatment of Irritability

An important field of research is concerned with the treatment of chronically high levels of irritability that are associated with physical illnesses and mental disorders. Treatment methods are categorized as behavioral, pharmacological, and psychotherapeutic. Behavioral treatments include but are not limited to breathing-relaxation techniques and educational sessions on dealing with anger and hostility. Such methods have been found to be effective in reducing vital exhaustion and risk of coronary events in individuals with percutaneous coronary angioplasty. Other studies have described the effectiveness of Rational Emotive Behavior Therapy (REBT) in modifying specific irrational beliefs in children and adolescents to decrease aggression. Research is ongoing to examine whether the reduction of irritability may contribute to decreases in other physical illnesses.

In the case of mental disorders, pharmacological treatments, including the use of antidepressant drugs with tranquilizing actions for mood disorders, are far-reaching in the

prevention and treatment of irritability episodes associated with physical and mental disorders, including personality disorders. Pharmacological methods of correcting hormonal imbalances also result in significant reductions in irritability. Such a conclusion stems from research on individuals with Cushing's syndrome and hyperprolactinemia.

Psychotherapy is also used to modify abnormal levels of irritability and hostility. Although such methods require considerable clinical skill, therapeutic programs that are based on cognitive-behavioral intervention principles have been found to be effective.

Closing Statements

Mood is an essential psychological component that underlies individual differences and behavior. Mood states can be predicted by stable personality dimensions, including neuroticism and extraversion, but are often independent and, instead, are influenced by situational variables. Similarity, irritability is a dimension of mood that is present in individuals' daily lives and expressed in a variety of physical and mental illnesses. Although most research on irritability has focused on its relationships to other psychopathology, correct understanding of its characteristics and causes, and those of other mood states, is necessary for healthy quality of life and health problem intervention and prevention.

See Also

Aggression, Personality Correlates of
Hostility, Personality Correlates of
Irritability/Moodiness
Motivation (Achievement, Affiliation, Power)
Personality in Culture

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Judgments of Personality

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Personality research across disciplines and uses, including questionnaire development, has largely centered on the development of a sufficient taxonomy of traits. Through multivariate methods, mostly factor analyses, of all trait descriptors and adjectives employed in natural language and personality questionnaires, a consensus has arisen as to the number of core factors underlying personality. A total of five factors is said to best represent the factor structure of personality and provide a comprehensive overview of one's temperament (Weisberg et al., 2011). The five factor model or Big Five comprises Extraversion, Agreeableness, Conscientiousness, Openness to Experience, and Neuroticism; however, the exact number and makeup of the facets underlying each broad factor require further deliberation and may vary according to the context and purpose of testing. Nevertheless, while a large number of personality inventories provide an indication of participants' standing on these Big Five factors, there are a variety of test types and hence outcome measures, with the exact format of the measure and results presented varying according to the model on which it was developed and the intended use of the results obtained. The focus of this entry will be on outlining the different types and methods of personality testing and assessment and providing examples of each, whilst comparing the various outcomes provided and the contexts in which they are most commonly used.

Personality Testing and Assessment

A personality test is a standardized instrument, inventory or questionnaire that is developed to reveal aspects of character or temperament. Personality tests were first developed to aid the process of personnel selection and are still commonly used for this purpose and/or in research into individual differences. In comparison, personality assessment is often used in diagnosing psychological disorders and incorporates a variety of personality measures, including

interviews and a battery of projective, objective, and situational tests. The most common types of personality tests are projective and objective. Specifically, projective measures of personality are founded on psychoanalytic theories and hence employ ambiguous stimuli to signal aspects of underlying personality traits.

In comparison, objective tests, such as self-report measures, comprise a restricted response format (ordinal rating scales or true/false responses), rely on an individual's personal response and are relatively free of response biases (i.e. contain extensively tested validity scales). The most common objective personality test is the Minnesota Multiphasic Personality Inventory (MMPI; Hathaway & McKinley, 1951). Personality inventories, lexical tests, and questionnaires are all examples of objective tests. Personality inventories are self-report questionnaires on which participants provide reports on their own feelings and behaviors and that commonly employ a true/false or yes/no response format (Feingold, 1994). The lexical method proposes that a comprehensive review of personality can be achieved through assessing individual differences in response to single-term adjectives of underlying traits. Lexical inventories are also often presented as bipolar scales, on which a participant is to rate where they stand between the two polar opposites of a single dimension. Conversely, personality questionnaires provide participants with behaviors or statements that provide insight into the underlying traits and are asked to rate the degree to which they agree with the statement. Questionnaires may provide better criterion-related validity as the items provide participants with a frame of reference and hence enable them to better compare the degree to which their behavior in the past is in agreement with the statement. Similarly, lexical tests may be more open to response biases as they are generally more transparent. Nevertheless, the degree to which one displays response biases, such as impression management and self-deception, may be more reflective of the purpose for undertaking testing. For example, Cellar, Miller, and Doverspike (1996) found that a six-factor structure provided a better representation of data collected using a bipolar lexical inventory for employee recruitment, although, the factor structure was incomprehensible and poorly defined, likely reflecting participants' attempts to respond in a socially desirable manner.

Personality Tests

Table 1 presents a list of currently used and previous personality measures.

See Also

16 PF, Correlates of
Anxiety, Assessment of
Assessment of Intelligence, General Features and Methodological Issues
Assessment of Personality Processes, General Features and Methodological Issues
Behavioral Assessment Techniques, General Features and Methodological Issues
Behavioral Assessment Techniques of Personality in Children
Behavioral Genetics, General Features and Methodological Issues

Table 1 *Various Personality Tests Used Overtime and Currently*

Test	Author & Year	Description
Activity Vector Analysis	Clarke and Associates, Inc. (1956)	Self-report questionnaire used to measure aggressiveness, sociability, social adaptability, and emotional control. Used for recruitment
Bem Sex-Role Inventory	Bem (1974)	A 7-point Likert measure of 20 masculine, 20 feminine and 20 filler traits aimed at assessing masculinity, femininity, and sex roles
California Psychological Inventory	Gough (1956)	Self-report inventory with 434 true/false, non-clinical, everyday behaviors and traits
Eysenck Personality Questionnaire	Eysenck and Eysenck (1985)	Questionnaire that provides a measure of extraversion, neuroticism, and psychoticism
Hare Psychopathy Checklist	Hare (1980)	A 20-item checklist that is to be completed on the basis of a semi-structured interview to assess perceived personality traits and observed behaviors
RIASEC	Holland et al. (1969)	A measure and theory that matches personalities and careers, and results in a classification of being Realistic (Doers), Investigative (Thinkers), Artistic (Creators), Social (Helpers), Enterprising (Persuaders), and Conventional (Organizers)
Keirsey Temperament Sorter	Keirsey	A self-report personality questionnaire that helps people better understand themselves and others. The measures presents items with two alternative response options. People are subsequently categorized as guardians, rationals, idealists, or artisans
Minnesota Multiphasic Personality Inventory	Hathaway and McKinley (1951)	A standardized objective measure of personality and psychopathology that is most commonly employed for clinical diagnoses, treatment planning and assessment and personnel recruitment/employment
Millon Clinical Multiaxial Inventory	Millon, Grossman, and Millon (1969)	A standardized measure of psychopathology (including specific psychiatric disorders outlined in the Diagnostic and Statistical Manual of Mental Disorders) and personality traits
Myers-Briggs Type Indicator	Briggs and Myers (1929)	An introspective, self-report measure of personality type, that indicates your preference on four dimensions: (1) where you focus your attention (Extraversion or Introversion), (2) the way you take in information (Sensing or Intuition), (3) how you make decisions (Thinking or Feeling), and (4) how you deal with the world (Judging or Perceiving)
Pearson-Marr Archetype Indicator	Pearson and Marr (2002)	A 5-point Likert type scale that provides an index of the presence of 12 archetypes at that point in time
Rorschach Inkblot Test	Rorschach (1921)	Projective personality measure, wherein participants are asked to describe what they see in a series of ambiguous inkblots. Their verbal descriptions are subsequently interpreted as revealing aspects of their inner personality

(Continued)

Table 1 (Continued)

Test	Author & Year	Description
The Sixteen Personality Factor Questionnaire	Cattell (1949)	A self-report, lexical inventory that assesses 16 major factors of personality, as identified following decades of factor analytical research
Taylor-Johnson Temperament Analysis	Johnson (1941)	A bipolar, lexical personality inventory designed to assess nine personality traits that relate to individual adjustment
Temperament and Character Inventory	Cloninger and colleagues (1993)	A personality measure that assesses four temperaments (novelty seeking, harm avoidance, reward dependence and persistence), and three characters (self-directedness, co-operativeness and self-transcendence)
Thematic Apperception Test	Murray (1943)	A projective psychological test, wherein participants provide narratives to a series of ambiguous pictures of people, which are subsequently interpreted as revealing underlying aspects of personality
DISC	Marston (1928)	A behavior assessment tool that may be used for personnel selection and recruitment through providing insight into four personality domains: dominance, inducement, submission and compliance
The Hand Test	Wagner (1962)	A projective technique that employs ten unbound 3.5×4.5 in. cards, nine with simple line drawings of single hands, and one blank card, to measure how the viewer interprets what each hand is doing. The blank card is left open to the imagination of the participant. Participants provide verbal responses which are recorded, scored and interpreted by the administrator
HEXACO	Ashton, Vries and Lee (2017)	This six-dimensional model of personality was formulated on the basis of several previous lexical studies and factor analyses of trait adjectives. Self-report or observer ratings are employed to provide an indication of one's standing on the following six personality dimensions: honesty/humility, emotionality, extraversion, agreeableness, conscientiousness and openness to experience
International Personality Item Pool (IPIP)	Oregon Research Institute	The IPIP is a freely available list of items for use in personality tests
Newcastle Personality Assessor	Nettle (2007)	A measure of the Big Five personality factors
Swedish Universities Scales of Personality	Gustavsson et al. (2000)	A personality measure of 13 personality traits: somatic trait anxiety, psychic trait anxiety, stress susceptibility, lack of assertiveness, impulsiveness, adventure seeking, detachment, social desirability, embitterment, trait irritability, mistrust, verbal trait aggression and physical trait aggression

Table 1 (Continued)

Test	Author & Year	Description
The Birkman Method	Birkman et al. (2008)	An online measure of social perception, personality and occupational interest assessment consisting of 10 scales describing occupational preferences (Interests), 11 scales describing "effective behaviors" (Usual behaviors), 11 scales describing interpersonal and environmental expectations (Needs or Expectations), and 11 scales that describe "less than effective" behaviors (Stress behaviors)
True Colors Personality Test	Lowry (1978)	A personality profiling system similar to the Myers-Briggs personality inventory described above. It was originally developed to categorize four basic learning styles or personality types using the colors blue, orange, gold, and green to identify the strengths and challenges of each. Everyone's personality consists of a combination of all four colors. Nevertheless, the two dominant colors are said to best reflect the individual's core temperament; green personality types are independent thinkers, gold are pragmatic planners, orange are very action-oriented, and blue are very people-oriented
Woodworth Personnel Data Sheet	Woodworth, developed during WWI	The Woodworth Personnel Data Sheet is commonly referred to as the first personality test, being developed during WWI to screen recruits for susceptibility to shell shock; however, it was not completed on time for utilization during WWI and was instead employed in much subsequent research
The Revised NEO Personality Inventory	Costa and McCrae (2008)	A 240-item 5-point Likert scale personality questionnaire that assesses participant's standing on the Big Five personality factors. A 60-item short version of the questionnaire is also available. Form S provides a self-report measure, while Form R is designed for observer ratings. All of the Big Five factors of personality are embody six more specific facets

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Learned Helplessness

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Learned helplessness is a behavioral response that occurs when individuals realize that the outcomes following a response are uncontrollable. For example, a child who is struggling with mathematics and continually performs poorly on tests and assignments may quickly begin to feel as though nothing he does may improve his performance and when he subsequently encounters math-related work, he may experience a sense of helplessness. As adults, individuals continue to encounter situations where they demonstrate learned helplessness behavior. For example, those who were once engaged with the political process may become frustrated with lack of change or perceived broken promises. As a result, individuals may become discouraged and no longer exercise their right to vote, as they believe that their voice does not matter.

Learned helplessness is a result of individuals being exposed to negative consequences (e.g., failing a math test), independent of one's behavior (e.g., trying very hard) and continues to impact the individual's future behaviors (e.g., no longer willing to try to improve math abilities). Learned helplessness only occurs if the individual has no control over the aversive event, and does not occur if the individual does have some control over the outcome. There are three primary components of learned helplessness: motivational, emotional, and cognitive.

Motivational

Individuals that demonstrate learned helplessness exhibit a decreased motivation to respond to a behavior due to their previous experiences. Specifically, individuals may be unmotivated to respond as they believe that the same outcome will occur, regardless of their behavior. Individuals who believe that they have no control over the outcome become helpless more easily than individuals who believe they have control over the outcome.

Emotional

Individuals with learned helplessness exhibit changes in emotionality. Individuals are often more emotional when uncontrollable events first occur. Initially, they often exhibit an increased emotional response to an outcome; this emotion is often identified as fear. Once the individual learns that the outcome is uncontrollable, the fear decreases, and feelings of depression begin. For example, a child who has failed an exam may be fearful of failing his or her next exam. However, once the child learns that he or she has no control of whether or not he or she passes the exam (i.e. the same result occurs regardless of whether the child studies or not), the feelings of fear decrease, and the student now begins to exhibit depressive feelings. In sum, individuals with learned helplessness may initially demonstrate a heightened emotional response to an outcome; if they are repeatedly exposed to the same outcome, they may then begin to display a decreased emotional response.

Cognitions

Individuals often have difficulty believing that their behavior has been successful. Individuals with learned helplessness often have difficulty recognizing their action and the consequence as dependent; instead, consequences are perceived as independent of one's actions and behaviors. For example, consider an individual who failed their first three driving tests, but passed the fourth time. If this individual demonstrates learned helplessness, he or she may believe that he or she passed the fourth time due to luck, instead of believing that his or her hard work and effort resulted in passing the test.

Connections to Psychological Disorders

Learned helplessness negatively impacts behavior and physical functioning and may lead to the development of psychological disorders. Learned helplessness may also exacerbate the negative symptoms of many psychological disorders. Specifically, learned helplessness is thought to be a primary process in the development of depression, as well as being associated with anxiety, shyness, posttraumatic stress disorder (PTSD), and schizophrenia.

Depression

Depression is a mental health disorder, characterized by persistent feelings of sadness and loss of interest in enjoyable activities. Learned helplessness is a central model of depression. Specifically, individuals that experience learned helplessness often focus primarily on negative experiences (i.e. conceding a goal in soccer) rather than positive experiences (i.e. scoring a goal in soccer). As a result, individuals begin to demonstrate depressive symptoms, such as a lack of positive emotions and pleasurable feelings in response to activities that were once enjoyable.

Anxiety

Anxiety disorders are characterized by constant, debilitating feelings of worry and fear. It is common for individuals that are exposed to uncontrollable aversive events to display increased fear and/or anxious behaviors, such as increased social avoidance. Thus, learned

helplessness can exacerbate the symptoms of anxiety. Additionally, learned helplessness may help account for an individual's anxiety-related symptoms (i.e. increased fear of a specific item, event, or situation).

Posttraumatic Stress Disorder

PTSD is a trauma- and stressor-related disorder that occurs when an individual has experienced or witnessed a traumatic event, such as a natural disaster, death, or war. It causes significant distress or impairment in one's social interactions and daily functioning. PTSD and learned helplessness both exhibit similar symptoms. Specifically, one major characteristic of PTSD is re-experiencing the precipitating event; individuals with learned helplessness may also re-experience previous, traumatic events. Further, occurrence of PTSD in individuals that have been victims of domestic violence may be specifically associated with high levels of learned helplessness. Thus, individuals with learned helplessness may be at an increased risk of experiencing PTSD.

Shyness

Learned helplessness may also exacerbate an individual's shyness. For example, an individual who feels shy in certain situations may begin to feel that he or she has no control of his or her feelings; in turn, he or she may believe that it is unable to overcome these feelings. The feelings of a lack of control may result in the individual avoiding these situations, in turn, worsening the shyness.

Schizophrenia

Schizophrenia is a neuropsychiatric disorder characterized by hallucinations, delusions, and disorganized speech and behavior. Individuals with schizophrenia often have difficulty performing tasks and frequently exhibit learned helplessness behaviors. Specifically, they may hold negative beliefs about their ability to succeed at a task, which negatively effects their motivation and effort. Thus, many individuals with schizophrenia give up and stop trying; this behavior may, in part, be due to their exposure to previous uncontrollable experiences (i.e. negative criticism).

Implications

Learned helplessness can negatively impact on behavior and physical functioning. Learned helplessness can impact children, youth, and adults in a number of ways throughout their lifetime. In particular, learned helplessness may have an impact on academic success/motivation, physical health, mental health, and social well-being.

Academic Success/Motivation

Learned helplessness is often directly related to a student's academic success and motivation. Students who demonstrated learned helplessness behaviors are often unwilling to engage in academic tasks because they believe that, regardless of their effort, they will not

be successful. For example, students with learned helplessness may refuse to complete a homework task or study for a test, as they may believe that regardless of whether they study or not, they will still do poorly on the exam. Overall, students with learned helplessness often believe that they have no control over the outcome, and that regardless of their actions or behavior, the end result will be the same.

Students with learned helplessness tend to blame themselves for failure. Specifically, individuals will often believe that failure occurs due to personal characteristics or abilities (i.e. they believe they are poor spellers, regardless of ability). Additionally, it is often believed that the reasons for failure are unchangeable and uncontrollable. Further, students with learned helplessness do not take credit for success. In cases where one succeeds, the success is justified in terms of environmental factors (i.e. the exam was easy). Students with learned helplessness frequently present with feelings of hopelessness and incompetence.

Physical Health

Learned helplessness can also impact physical health. Learned helplessness is often generalized across similar situations; thus, individuals that experience learned helplessness in academia may often generalize learned helplessness to sports or other physical activities. An individual that consistently struggles in sports and physical activity may feel inadequate and become unwilling to participate in future physical activities. For example, an individual that consistently fails to hit a hockey puck may believe that he or she is unable to play hockey and is therefore bad at all sports. This lack of confidence in his or her performance may prevent him or her from participating in sports in the future. This belief often results in the individual avoiding physical activity, and becoming sedentary, which may lead to other negative health effects.

Social Impact

Many victims of domestic violence experience learned helplessness. It is unclear whether domestic violence results in learned helplessness, or whether an individual experiences learned helplessness due to his or her life experiences; however, when looking at the link between abuse and mental disorders (specifically PTSD and depression), learned helplessness is often an influential factor. In particular, learned helplessness contributes to a victim's obedience and passivity as well as reluctance to leave an abusive relationship. Overall, learned helplessness is commonly experienced in victims of domestic violence and it can increase the negative impact of abuse on an individual's overall mental health.

Mental Health

As previously discussed, learned helplessness is associated with a number of mental disorders, including depression, anxiety, and PTSD. Learned helplessness is a primary model of depression, and can be used to explain symptoms of many psychological disorders. Additionally, learned helplessness may influence the severity of symptoms in individuals with psychological disorders (i.e. social avoidance in individuals with anxiety).

Overcoming Learned Helplessness

A number of different methods can be used to help individuals overcome learned helplessness. These strategies include pharmacological treatments and the use of cognitive therapy strategies.

Pharmacological Treatments

Medications can be utilized to help overcome the effects of learned helplessness. Uncontrollable stress can lead to changes in neurotransmitter levels, specifically, increased activation of serotonin and reduction of norepinephrine; these neurochemical changes can lead to behavioral symptoms of learned helplessness. Owing to the neurocognitive component of learned helplessness, anti-depressant medication may help to reduce the symptoms of learned helplessness. Often, anti-depressants that target serotonin and/or norepinephrine levels are used (e.g., Prozac). Not all individuals require pharmacological treatments to overcome learned helplessness, as the use of cognitive strategies has also been found to be effective.

Cognitive Therapy

Individuals with learned helplessness believe that the outcomes following a response are uncontrollable. To overcome learned helplessness, the individual must learn to change the way that they think, moving from feelings of helplessness to feelings of control. Cognitive therapy is one method that can be used to help people replace helpless thoughts with more positive thoughts, referred to as learned optimism. There are several cognitive therapy strategies that can be used. First, individuals can be encouraged to identify when they are interpreting events negatively. Additionally, individuals may be encouraged to generate more accurate interpretations of events. Finally, individuals may be encouraged to think about different consequences for an event, rather than the worst possible consequence.

Individuals with learned helplessness may also have difficulty with problem-solving skills and social skills. Cognitive therapy strategies can be used to help develop problem solving skills and social skills, which, in turn, may help individuals to overcome learned helplessness. Additionally, parents of children with learned helplessness can help by providing opportunities for children to be in control; for example, children may be allowed to choose what to eat for dinner, what clothes to wear, and in what activities they would like to participate.

See Also

Anxiety
Depression
Hopelessness
Martin Seligman
Posttraumatic Stress Disorders

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Life Satisfaction

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Concept

Life satisfaction (LS) is defined as the judgment of one's own life. Asking about LS may activate a global complex judgment that comprises comparing aspects of life to ideal standards, social comparison, aspirations and goals, one's past circumstances, and one's needs. The time frame can be referred to life "since birth" or to a specific moment in time. Likewise, LS is a term used globally (about one's life in general), but also can make reference to specific domains, such as health, education, family, social relationships, work, housing, or leisure. Interestingly, although global LS and domain satisfaction are substantially related, significant discrepancies can arise.

Following Ed Diener's influential conceptualization of subjective well-being (SWB), LS is often considered as the cognitive component of SWB whereas the reported affective state would be its emotional component. Although both components of SWB are correlated, the relative importance of each component may vary depending on the cultural setting (e.g. people in individualistic societies give more importance to pleasure and enjoyment whereas people in collectivistic societies give more prominence to life satisfaction or meaning in life even at the expense of the emotional well-being). Variables such as age, personality, values and life goals can also affect the relative weight of each SWB component.

Demographic, Structural Factors and LS

Although LS is relatively stable within individuals, it is also a sensitive index that varies across nations and cultures, as well as across economic and demographic variables (e.g. gender, age, education). The World Happiness Report (Helliwell, Layard, & Sachs, 2012, 2013) has found that, when comparing LS measures in different nations, more than three quarters of cross-country differences in average can be explained by variables already

known through experimental and other evidence to be important (GDP per capita, years of healthy life expectancy, inequality, social support, perceptions of corruption, prevalence of generosity, and freedom to make life choices).

Age

Age does affect LS scores in different ways depending upon the social and economic context. Whereas psychological well-being is highest at the youngest and oldest ages (a U-shaped relationship) in high-income English-speaking countries, in other regions (like Latin America or Eastern Europe) there is a continuous decline with age although the causes of these variations are not well known yet (Steptoe, Deaton, & Stone, 2014).

Gender

Evidence from different studies suggests that women have slightly, but significantly, higher average levels of evaluative well-being (measured by LS scales) than men worldwide. Interestingly, this positivity may be paradoxical when higher rates of depression are observed in women than in men worldwide.

Employment

Compared to their employed counterparts, unemployed people have been found to have lower measured LS and domain satisfaction, worse psychological health, and lower overall happiness. Many studies have revealed that the reduction in well-being caused by unemployment is larger than the reduction attributable to the loss in income – in other words, there is a larger effect on well-being from losing social status, workplace social life, self-esteem, and other factors, than the effect of losing income.

Personality

Among individual factors, personality traits are associated to LS at every age. It has been found that extraversion, neuroticism, agreeableness, and conscientiousness are associated to LS scores. Other factors, such as self-satisfaction (which is an important predictor of overall satisfaction) or interpersonal relationships, community involvement, and development of significant activities, are important LS pillars throughout life.

Health

Good health (measured as self-rated health and also in terms of the objective presence or absence of a disease or disability) is associated to higher well-being. This seems instinctive – people who are healthier, all else being equal, will probably be happier, although the impact of health problems on well-being may depend on the nature of the disorder. For instance, national surveys have shown that mental health problems have a much larger effect on LS than physical illnesses (Steptoe et al., 2014). What is even more interesting, there is a large body of experimental and longitudinal evidence showing that well-being causally influences both health and longevity and positive SWB is a protective factor for

health. In fact, well-being has been associated with improved cardiovascular health, immune functioning, reproductive health, less pain and greater pain tolerance.

Life Events

One of the factors that can affect LS is the perception of changes in life circumstances although, in the majority of cases, after a time LS returns to previous levels due to an adaptation process. Nonetheless, there are highly stressful or traumatic events that can affect well-being in the long term.

Measures of LS

In the last decade, there have been several calls to measure well-being from high-profile scholars and organizations. For example, in 2009 the Commission on the Measurement of Economic Performance and Social Progress, led by Nobel Prize-winners Joseph Stiglitz and Amartya Sen, called for better measures of societal progress, and their comments garnered to huge international attention. Detailed questions on SWB have been included in high quality social surveys, for example in some recent waves of the European Social Survey (ESS) and the European Quality of Life Survey (EQLS). In 2011, the Organization for Economic Development (OECD) launched its Better Life Initiative (www.oecdbetterlifeindex.org) at the center of which is its Better Life Index, a multidimensional measure of progress and well-being (see Table 1); and since 2012 the World Happiness Report has been published annually.

Several measures of LS have been developed that consist of asking respondents to evaluate either their lives as a whole or each life domain (typically on a scale ranging from *very satisfying* to *very dissatisfying*) (Table 1). There is ample evidence, accumulated over years of sound research, on the consistency and validity of these subjective assessments.

Reliability of LS Measures

High correlations between life evaluation scores from different measures and between a measure given repeatedly across short time intervals indicate the high reliability of LS measures.

Although measures of LS are relatively stable, they are not insensitive to changes in life circumstances. About 60–80% of the variability in repeatedly assessed LS scales is associated with long-term factors (e.g. childbirth, changes in marital status or in income). The remaining 20–40% is due to occasion-specific factors and error of measurement (Eid & Diener, 2004).

Validity of LS Measures

LS has shown clear discriminant validity from related concepts such as positive affect, negative affect, optimism, and self-esteem. Concerning inter-rater validity, Schneider and Schimmack (2009) meta-analyzed 44 studies and found a mean correlation of 0.42 between self-reports and the reports of the participants' LS from other informants (e.g. family or friends), which was higher than the comparable figure for reports on moods and emotions of the participants.

Table 1 *Measures of Life Satisfaction*

Measure	Author (year)	Description
Cantrill's Ladder Scale	Cantrill (1965)	1-item scale where responders are asked to place themselves on an imagined ladder with steps numbered from zero at the bottom (*the worst possible life*) to 10 at the top (*the best possible life*).
Satisfaction with Life Scale (SWLS)	Pavot and Diener (1993)	5-item scale which results in a total score. It is the most commonly used scale to assess LS.
Australian Personal Well-Being Index (PWI)	International Wellbeing Group (2006)	8 items to assess satisfaction with 8 different areas (living standards, health, accomplishments, relationships, safety, community, future security and religiosity/spirituality) and an item of general LS.
Your Better Life Index (BLI)	OECD (2011)	This is a tool that allows comparison of countries' performances according to 11 dimensions of well-being (housing, income, jobs, community, education, environment, civic engagement, health, Cantrill's ladder, safety, work-life balance). http://www.oecdbetterlifeindex.org
Students' Life Satisfaction Scale	Huebner (1991)	7-item measure of LS for children (ages 8–18).
Multidimensional Students' Life Satisfaction Scale (MSLSS)	Huebner (1994)	40-item scale to assess life satisfaction in five dimensions (family, friends, living environment, school, self). There is also a 5-item Brief Multidimensional Students' Life Satisfaction Scale (Luhmann et al., 2012).

Longitudinal studies reveal that LS often precedes and predicts selected outcomes. Low levels of average national LS are related to higher suicide and LS scores also significantly predict health and longevity (Diener & Chan, 2011). A study found that those people high in LS were more likely during the next five years both to get married and become parents, and were less likely to become separated, relocate, or lose their job (Luhmann et al., 2012).

There is no doubt that measuring LS, and well-being in general, is a legitimate scientific and societal goal. Along with economic and social indicators, LS provides a broader picture reflecting the quality of people's social lives. Encouraging public policies that promote psychological well-being is an area in which social scientists and policy-makers are becoming interested. Attempts to improve people's lives, transcending the usual economic parameters, are not trivial but necessary, and LS is a valuable approach in this ambitious scientific and political enterprise.

See Also

Ed Diener
Hedonic Adaptation and Happiness Theory
Personality and Positive Psychology
Personality and Well-Being
Subjective Well-Being, Assessment of

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Locus of Control, Personality Correlates of

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Conceptualized and Categorized

How much control do you believe you have over your behavior, your environment, or your health? Most psychological theory explains that a feeling of personal control that we believe ourselves to have is very important to us in adaptive functioning, because it helps us successfully negotiate our way through life. Many empirical studies report that people who feel that they have the means to obtain desired outcomes and to avoid undesirable ones are better able to sustain emotional stability, well-being, and a favorable life in general than people who feel that their lives are determined by forces outside themselves.

In the mid-1960s Julian Rotter first introduced the idea of locus of control (LOC) to describe the generalized expectancy that personal actions will be effective to control or master the environment within social learning theory. According to Rotter's construct, people vary on a continuum between the two extremes of "internal" (I) and "external" (E) LOC in regard to personality and individual differences. He developed the I-E Scale measure which consisted of 29 questions having two options for respondents to choose from: one option expresses a typical attitude of I-LOC expectancy, and the other option an attitude of E-LOC expectancy, in which the higher the score, the more external the individual is regarded.

"Locus" means "place," and the logic behind the use of the I-E Scale measure is that a person perceives more control when the locus of that control is "internal," thus contingent on the person's own behavior, than when the locus is "external," thus dependent on the actions of other persons, or a matter of fate, luck, or chance. The principal function of the generalized expectancy assessed by the I-E Scale measure is to aid in the prediction of behavior. The potential for a given behavior to occur in a given psychological situation is a function of the expectancy that the behavior will lead to a particular reinforcement and the value of that reinforcement to the individual in that situation.

Lefcourt (1976), a follower of Rotter's, defined internal control as the perception that positive or negative events are related to one's own behavior and thus are under personal control. An individual with high I-LOC believes that his or her own actions caused the outcome. High I-LOC people experience themselves as having personal control over themselves and events; they do things. Conversely, external control is defined as the perception that positive or negative events are unrelated to one's own behavior and thus are beyond personal control. An individual with high E-LOC believes that the outcome was determined by outside forces. These people view most events as dependent on chance or controlled by powers beyond human reach.

Wallston, Wallston, & DeVellis (1978) expanded Rotter's original scale beyond the simple I-E dimension to develop the multidimensional health locus of control (MHLC) scale, which measures the effect of beliefs on health outcomes in health-care specific settings. The MHLC consists of three dimensions: internality – the belief that health status is controlled by one's actions; chance – the belief that chance is affecting the outcome of health; powerful others – the belief that powerful other people control one's health.

Similarities of LOC to Other Constructs

There is an affinity between LOC and other psychological theories and constructs such as attribution theory, controllability and coping in regard with learned helplessness, optimism/pessimism, and self-efficacy. Attribution theory has been one of the most influential topics on LOC studies. Heider (1958) introduced this theory to psychology and classified the reasoning styles for behavior and events into two groups: internal attribution and external attribution. Internal attribution induces consciousness of self-responsibility for the given behavior and its outcomes, whereas environmental and situational factors are listed when one made external attribution.

Weiner (1992) suggested that outcomes from initial intrinsically/extrinsically motivated behavior would affect present motivation for future behaviors, and constructed three categories of attribution as applied to achievement motivation: LOC (internality-externality), stability (stable-unstable), and controllability (controllable-uncontrollable). LOC influences perseverance on one's commission. Stability is related to one's expectation for future outcomes. Controllability affects one's belief system for appraisals of surroundings. Beyond this three-dimensional model, Seligman added a global-specific category.

Bandura (1977) revealed that self-efficacy affects the choice of present behavior via expectancy of required exertion and one's idea about controllability. His concept differs from LOC because it was belief within a particular behavior and situation, though Bandura's followers expand his idea as generalized self-efficacy on relating behaviors and similar situations with the initial self-efficacy.

Maier and Seligman (1976) applied another related concept of learned helplessness to human motivational and coping styles and psychopathologies based on their classical conditioning experiments using dogs. They argued that people tended to abandon their own control on their situations when experiencing repeated negative outcomes from their behaviors. And those who attributed these situations with I-LOC, as stable and global, would have deep negative moods and no control over their all present surroundings, and fall into clinical

depression or other mental illnesses. Seligman developed his idea relating to optimism and further as positive psychology. Optimists generally attribute successful situations with the internal, stable, and global, and unsuccessful situations with the external, unstable, and specific. This explanatory style in optimists is the so-called "self-serving bias" (Bradley, 1978).

Dispositional optimism was defined in terms of generalized outcome expectancies by Scheier and Carver (1985). The concept of optimism also includes explanatory style of behavior and events, and involves cognitive, emotional, and motivational components. While a pessimistic explanatory style improves one's abilities and stress coping skills, a more optimistic outlook on life helps individuals to cope and challenge the self-defeating attitudes more effectively. Is explanatory style a stable characteristic over the life stage? An explanatory style for negative life events among elderly people showed significant stability over five decades. Peterson et al. (1988) suggested pessimistic explanatory style at age 25 predicted the increase of self-reported illness between the ages of 40 and 60.

In past decades, it was believed that accurate perception of reality was the best way to have a healthy mind; however, more recent findings suggested the power of positive self-illusion. Healthy and happy people often have erroneous strong beliefs in I-LOC for successful events and of themselves such as their ability to control the world, recently described as "mind-set." Dweck (2007) introduced two fundamental categories of mind-set: growth mind-set and fixed mind-set. She formulated these categories based on her primary researches about motivation, personality, education, and development.

Like the concepts of LOC and attribution styles, mind-set consists of beliefs and/or expectations including one's implicit views of where abilities come from. People with growth mind-set can accept their own I-LOC, pliable thoughts and feelings, and dedication and effort. Hence, this mind-set will give rise to success or personal improvement even if they are not satisfied with the outcomes of their behavior. Conversely, individuals with fixed mind-set tend to be convinced that facets of themselves and the environment surrounding them are permanent and cannot be changed meaningfully.

Application and Contribution of LOC Researches

Positive psychology is very much concerned with personality and individual differences of a sense of personal control. It is well-known that LOC is the trait most strongly implicated in resilience to stress and health, as well as motivation. The transactional model developed by Lazarus and Folkman (1984) suggests LOC is a moderator of stress-coping processes and stress responses leading to ill health.

Many researchers on chronic disease in behavioral medicine have suggested that internal health LOC belief has a positive effect on self-management behavior and motivation of rehabilitation in patients with diabetes mellitus, obesity, or hyper-cortical dysfunction. Another area of applied research that has investigated LOC is psychiatric medicine. Precipitate mechanism of depression could be related to E-LOC belief about the world and the future. Cognitive-behavioral therapy proposed that cognitive restructuring which focuses on low self-controllability for stressful life events was useful for depressive patients.

Attribution therapy of LOC is useful not only for depression but also for learned helplessness in children with developmental disabilities. Resilient people have flexible cognitive

mechanisms that help them deal with demanding life events and balance in life. Highly resilient people show energetic, active, curious and resourceful personality traits, while brittle and over-controllable people show inhibited, constricted, worrying and anxious personality traits and withdrawal behavior under stress.

However, excessive effort of self-control and rumination of negative thought is more likely to lead to relapse of depression. So, intervention and relapse prevention of depression by mindfulness-based cognitive therapy and stress-management training are intended to adjust excessive thought control. Health psychology regards a new concept called "bi-local expectancy" (April et al., 2012), a mix of I-LOC and E-LOC, as a flexible coping style for individual happiness and optimal well-being.

Further studies which incorporate the standardized criteria for classifying individuals as internals or externals using the standardized LOC construct with cut-off scores across the cultural context should produce solid results, and have considerable value in understanding behavior-based LOC.

See Also

Adaptability
Anxiety
Authoritarianism
Biculturalism
Character and Leadership
Dark Triad
Entrepreneurship/Intrapreneurship, Personality Correlates of
Eysenck Giant 3
Goals and Motives
Human Genome Project and Personality
John F. Kihlstrom
Lewis Goldberg
Linguist Analysis in Personality Research (including the Linguistic Inquiry and Word Count)
Longitudinal Research
Meaning and Life
Obsessive Personality
Optimism/Positivism vs Pessimism/Negativism
Perfectionism
Persistence, Personality Correlates
Personal Construct Theory of George A. Kelly
Personal Projects
Priming
Religion and Spirituality
Responsibilities of Testing Professional
Self-Regulation
Sixteen Personality Factor Questionnaire (16PF)

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Loneliness

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Loneliness

Conceptualized and Categorized

Loneliness is defined as a negative emotional state that occurs when an individual feels that his/her social relationships are not what he/she wants, in terms of quality or quantity (Peplau & Perlman, 1982). For most people, loneliness is a transient experience because it is influenced by changes in circumstances (i.e. moving away from home) that people adapt to. However, some people experience prolonged loneliness, which is a painful experience that has detrimental mental and physical health outcomes (Hawkley & Capitanio, 2015).

The most prominent theory of loneliness is the evolutionary theory of loneliness (Cacioppo & Hawkley, 2009). Cacioppo and Hawkley posited that loneliness is the social equivalent of physical pain, hunger, and thirst; the pain of social disconnection motivates the maintenance and development of social relationships necessary for the survival of human genes. That means feelings of loneliness generally succeed in motivating people to reconnect with others following geographic relocation or bereavement. Thus, just as physical pain is an aversive signal that evolved to motivate humans to take action to minimize damage to the physical body, within the evolutionary model of loneliness, loneliness is seen as an aversive state that evolved to motivate humans to minimize damage to the social body.

It has been argued that the protection of the social body occurs through the activation of an evolutionary mechanism known as the Re-Affiliation Motive (RAM; Qualter et al., 2015); the RAM is activated by the negative emotional state felt when lonely. Activation of the RAM increases people's attention to social stimuli to promote reconnection to others, and there is evidence from adult and child studies that lonely people show increased vigilance of social cues. Contrary to expectation, activation of the RAM also causes people to withdraw from social encounters, enabling attention to be focused on social cues, which leads to social reconnection.

But, why do some people stay lonely? There are risk factors for prolonged loneliness. Qualter et al. (2015) summarized the research thus far and noted that prolonged loneliness during childhood and adolescence appeared to have its origins in low self-worth and low trust. There are other risk factors, but these two have been shown to be particularly important because prolonged loneliness among older adults is also, consistently, related to a perceived lack of control, and low self-esteem. Other studies have shown biological and genetic underpinnings in the development of loneliness in adolescence (Goossens et al., 2015). The genes that have been found to be associated with the development of loneliness are often associated with attention processing, including sensitivity to emotional or social information, disengagement difficulties, and specific reward mechanisms in the brain. It is possible that there are genetic characteristics that interfere with the RAM that lead to prolonged loneliness: having specific genes may mean that some people are overly sensitive to emotional or social information or have problems disengaging from threat stimuli. Intervention work is beginning to focus on disruptions to the RAM that may be associated with prolonged loneliness.

Trajectories of Loneliness

There are changes in people's social experiences and expectations across development, and these changes can increase loneliness. There are specific points across development when loneliness peaks, and they appear to be during periods in development when there are changes to the social environment that are also accompanied by major physical and psychological developmental shifts. Specifically, the percentage of people feeling lonely "sometimes" or "often" is highest during adolescence when youths enter puberty and are faced with the challenge of establishing their own identity, and during old age when there is increasing frailty and decreased mobility accompanied by the loss of loved ones.

In addition to normative changes in loneliness across the lifespan, there is a small group of people who experience prolonged loneliness. In several longitudinal studies that are summarized in Qualter et al. (2015), researchers have found between 3% and 22% of people of different ages experiencing prolonged loneliness over time. In all of those studies, individuals following a trajectory of prolonged loneliness showed relatively poor mental and physical health.

Prolonged Loneliness and Poor Health Outcomes

Prolonged loneliness has been found to have deleterious effects on mental and physical health across development. Hawkley and Capitanio (2015) summarized the research so far. They noted the fact that depressive symptoms are a well-established outcome of prolonged loneliness, with the pattern being seen in people as young as 6 years of age. They also note the considerable research that shows prolonged loneliness predicts poor sleep, self-reported poor health, poor immune functioning, and poor neuroendocrine functioning in people aged 18 years and above, and early mortality in people aged 50+ years. There is little agreement about why there is a relationship between loneliness and depressive symptoms, but there is much better agreement regarding the mechanism that explains the relationship between loneliness and poor physical health.

In support of the evolutionary model of loneliness (Cacioppo & Hawkley, 2009), evidence shows that lonely people are hyper-vigilant of social threats. And, while that enables most lonely people to re-engage with others, being lonely and on high alert for too long leads to poor health through an increased activation of threat surveillance mechanisms, such as (1) the hypothalamic–pituitary–adrenal (HPA) axis and (2) the cardiovascular systems. Activation of these systems explains the relationship between loneliness and poor health.

Dysfunctions of the cardiovascular system are associated with loneliness. Lonely people display elevated peripheral resistance (i.e. resistance to blood flow) and lower cardiac output (i.e. the amount of blood pumped by the lower heart chambers in 1 minute). These dysfunctions lead to increased risk of cardiovascular disease in lonely people.

It appears that the health effects of loneliness in adulthood are the result of an interaction between loneliness and typical age-related effects on physiological systems in adulthood to old age. Given that health effects (i.e. disturbed sleep, poor subjective health, and increased frequency of childhood illnesses) are evident in children and adolescents who experience prolonged loneliness, it is important that physiological mechanisms underpinning poor health in lonely children are examined. The findings implicate the HPA axis as a functional mechanism that may be involved in the interaction between loneliness and health, but, to date, no published studies have reported on that during childhood and adolescence.

Cross-Cultural Differences in Loneliness

Even though loneliness is a universal experience, it is likely to be influenced by cultural factors, including cultural beliefs on the virtues and purposes of solitude. Cross-cultural research on loneliness, however, is not yet widespread. From research to date, there appears to be little difference in the prevalence of transient or prolonged loneliness across different cultures. There is also no consistent evidence that there are cross-cultural differences in relation to the experiences of loneliness within a country. One might expect that living in a country with a different cultural background may lead to loneliness, but research does not suggest that. There is a need to establish the cultural equivalence of the measure used, and such research is limited.

Measuring Loneliness

Several loneliness measures have been used in research. Each assesses loneliness in a different way. There are single item measures (e.g. "how often do you feel lonely?"), uni-dimensional scales (e.g. the UCLA Loneliness Scale), and multi-dimensional scales (e.g. the Social and Emotional Loneliness Scale for Adults). Some scales include the word "lonely," whereas others try to measure loneliness more indirectly and avoid using that term. Although several measures can be used with different age groups, most measures are used with a specific age category, such as children (e.g. the Children's Loneliness Scale), adolescents (e.g. the Loneliness and Aloneness Scale for Children and Adolescents), or the elderly (e.g. Rasch-Type Loneliness Scale). Having different measures for different age groups means that appropriate language can be used and suitable vignettes can be included, but they make it difficult, in longitudinal research, to monitor change and stability in loneliness. When comparing studies conducted with different age groups, it is also important to keep in mind that these studies may have used different loneliness measures.

Some researchers have argued for the use of measures that focus purely on the experience of loneliness. Most current measures include items that ask about the hypothesized causes of loneliness, such as perceptions of one's social competence (e.g. "it's easy for me to make new friends") or perceptions of whether one has friends (e.g. "I have a lot of friends"). It is important to avoid overlapping content in items between the assessment of loneliness and the assessments of potentially related variables, and there is a call to strengthen measures so they are clearly measuring loneliness and not related constructs.

Interventions for Prolonged Loneliness

There has been an increase in the understanding that loneliness is a risk factor for adverse psychological and physical health. This has meant there has been interest in interventions that might reduce prolonged loneliness. For instance, several governments have launched campaigns designed to increase awareness of the growing problems of loneliness and social isolation. In the United Kingdom, there is the Campaign to End Loneliness (http://www.campaigntoendloneliness.org/about-the-campaign); in Denmark, there is a campaign by the Crown Princess and her Mary Foundation (http://www.maryfonden.dk/en/loneliness); in Canada there is a campaign by the Canadian Seniors Council (http://www.seniorscouncil.gc.ca/eng/home.shtml), and in the United States, among others, Oprah Winfrey has launched a loneliness campaign (http://www.oprah.com/health/Just-Say-Hello-Fight-Loneliness). Such campaigns are not limited to these countries, and they all raise awareness of loneliness and attempt to stop the stigma surrounding it. But, they represent only a first step. Effective interventions are also needed.

A meta-analysis conducted in 2011 by Masi et al. suggested that interventions designed to modify maladaptive social cognition may be especially worth pursuing in relation to loneliness. This is supported by others (Qualter et al., 2015), who suggest that attention re-training and priming acceptance are also likely to be effective. However, there have been no randomized controlled studies in the field of loneliness to examine the effectiveness of such treatments at reducing loneliness.

See Also

Honesty
Shyness
Social Anxiety and Social Anxiety Disorder

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Mindfulness

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Mindfulness Defined

Mindfulness can be defined as an active state of being highly aware to internal and external stimuli, including present sensations, feelings, and cognitions, in an accepting and non-judgmental way. In other words, mindfulness involves attending to oneself and one's surroundings without applying labels or emotionally engaging in these experiences. Mindfulness allows one to disengage from automatic thoughts and behaviors that include ego-involvement or preoccupation with unwanted thoughts, which may be maladaptive. This definition of mindfulness is rooted in Buddhism and is an essential component in the path to enlightenment in Buddhist practice.

Baer and colleagues in 2006 suggested that mindfulness consists of five facets: observing, describing, acting with awareness, non-judging of inner experience, and non-reactivity of inner experience. The observing facet of mindfulness involves being aware of internal and external sensations, cognitions, and emotions. Describing involves labeling these observed experiences objectively. Acting with awareness involves the process of content related to attending to internal and external experiences, including normally automatic actions (e.g. breathing). Non-judging of inner experiences is defined as being non-judgmental of internal and external experiences. Lastly, non-reactivity to inner experience involves allowing experiences, like thoughts and feelings, to come and go without engaging with them.

Research on mindfulness has increased dramatically over the last decade and suggests that mindfulness and associated techniques are beneficial for psychological well-being (e.g. stress reduction), mental health (e.g. reduction of anxiety and depression), physical health (e.g. decreased blood pressure), and may have wide-reaching positive effects in intimate relationships and in the workplace. For example, a mindfulness-based intervention in the workplace by Wolever and colleagues showed that employees' psychological distress (e.g. stress, anxiety) decreased throughout the intervention, particularly for those with low baseline mindfulness.

Mindfulness Conceptualized and Categorized

Mindfulness has been conceptualized in several ways. On the one hand, mindfulness has been nomologically defined by its relationship with well-defined constructs, such as personality, which suggests that mindfulness is a trait-based individual difference. On the other hand, mindfulness has been incorporated within therapeutic frameworks, with the notion that mindfulness is skill-based and can be enhanced. Furthermore, other researchers have conceptualized mindfulness as state-based, dependent on an individual's temporary situation or motives. In sum, mindfulness has been conceptualized in three primary ways: trait-based, skill-based (i.e. as a set of skills and techniques that can be learned), and state-based approaches.

These differing views of mindfulness suggest that individuals vary on the inherent ability in which they can employ mindfulness at any given time due to dispositional factors, and that mindfulness differs both between and within individuals. Research has supported all three perspectives: the trait-based, skill-based, and state-based theories. Although we focus on contextualizing the trait-based approach to mindfulness, a discussion of this construct would be incomplete without touching on the skill-based and state-based perspectives.

Perhaps most prominent, the skills-based conceptualization of mindfulness emphasizes that mindfulness can be learned and developed through practice, which is evidenced by the multitude of mindfulness programs available to help foster and grow mindfulness skills. Jon Kabat-Zinn popularized mindfulness in North America with his Mindfulness-Based Stress Reduction (MBSR) therapy in 1979. Since then, the notion of mindfulness has become increasingly popular in a number of psychotherapeutic approaches. For instance, mindfulness is a critical component of Dialectical Behavioral Therapy (DBT) and Acceptance and Commitment Therapy (ACT).

Mindfulness has also been considered state-based such that one can experience momentary mindfulness while the necessary attention and orientation to experience are maintained. For instance, state-dependent mindfulness has been found to vary based on day-to-day emotionality and well-being. Indeed, individuals vary in mindfulness due to intrapersonal factors such as levels of distraction, motivation, etc. In line with this perspective, research has shown that 15 minutes of mindfulness improves positive responses to neutral stimuli compared to a control group. Having the disposition to be mindful (trait-based) and being momentary mindful (state-based) both have been found to have positive effects on well-being, autonomy, and positive affect, in addition to decreasing levels of negative affect.

Mindfulness and Personality

In line with the trait-based theory of mindfulness, researchers have examined how mindfulness relates to well-established dispositional characteristics like personality traits. A meta-analysis by Tamara Giluk in 2009 synthesized findings from 32 samples in 29 studies to determine which personality traits in the Five Factor Model (FFM) of personality – neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness – relate to mindfulness. Additionally, this meta-analysis looked at the relationship between mindfulness and affect, which is broadly defined as experienced emotion or mood.

Negative affect was strongly negatively correlated with mindfulness ($p = -0.39$). In contrast, positive affect is positively correlated with mindfulness ($p = .34$). Similar to mindful individuals, those with positive affect are more likely to have high concentration, increased energy, and are more in tune with their experiences.

Of the FFM traits, neuroticism is most strongly negatively correlated with mindfulness ($p = -.45$), such that those high in neuroticism were low in mindfulness. Neurotic individuals tend to experience poorer psychological functioning, and tend to be anxious, irritable, and insecure, whereas mindful individuals are more tolerant and experience higher psychological well-being. Therefore, mindfulness may be particularly difficult for neurotic individuals, since these individuals tend to have opposing traits to those of mindful individuals. In line with this, research has shown certain facets of neuroticism (depression, self-consciousness, and angry hostility) are negatively correlated with mindfulness.

Conscientiousness is strongly positively correlated with mindfulness ($p = .32$). Mindful and conscientious individuals share strong self-discipline, self-regulation, and are more deliberate and thoughtful.

Extraversion, however, is weakly positively correlated with mindfulness ($p = .12$). The excitement and thrill-seeking behaviors common of extraverted individuals are not aspects of mindfulness.

Agreeableness was moderately positively correlated with mindfulness ($p = .22$). These traits share empathy, compassion, and concern for others. Additionally, agreeable individuals tend to be more trusting and believe in the good in others, which is consistent with Buddhist tradition.

Openness to experience was also found to be weakly positively correlated with mindfulness ($p = .15$). These traits share curiosity and receptivity to experience, in addition to emphasizing attention, but lack overlap in other areas.

A new concept that has been burgeoning in mindfulness literature is "social mindfulness," which has its roots in Buddhist practices. Social mindfulness incorporates and expands on general mindfulness such that it is conceptualized as an awareness of the needs and interests of others in situations of interdependence. Interestingly, the personality trait of honesty-humility (see HEXACO model) is positively related to social mindfulness ($p = .32$). Specifically, social mindfulness was related to the fairness, greed avoidance, and modesty facets of honesty-humility, indicating individuals high on these three facets tend to be higher on social mindfulness.

Similarities of Mindfulness to Other Constructs

Mindfulness has been distinguished from other socially related constructs. Although it shares variance with self-awareness, mindfulness has been shown to be a unique construct. Mindfulness emphasizes awareness and attention to current internal and external experiences. This can be distinguished from other self-referential constructs (e.g. self-consciousness, self-reflectiveness, self-awareness), which often focus on the past or future. Additionally, these constructs often involve making judgments about one's subjective experiences. Mindfulness involves an unbiased, non-judgmental observation of thoughts, whereas other self-referential constructs involve a more reflexive application of attention.

In other words, these self-referential constructs involve thinking of oneself as the result of engaging with experiences through rumination and other often maladaptive techniques. Operational definitions of these constructs have also been shown to be empirically different; mindfulness has been associated with greater well-being and adaptive emotional responses, whereas self-referential thought has been associated with maladaptive or poor psychological well-being.

Another important distinction is between everyday mindfulness and mindfulness during meditation. Everyday mindfulness is the focus in the present moment on a single stimulus, such as breathing. Mindfulness during meditation is specific to one's ability to stay focused in a mindfulness-specific activity, such as meditation. Previous research has often used these terms interchangeably. However, research has shown a lack of relationship between everyday mindfulness and mindfulness during meditation, suggesting these are different constructs. This relationship is further complicated by level of meditation experience. Mindfulness during meditation seemed to be related to everyday mindfulness for those naïve to meditation; however, this relationship did not exist for experienced meditators. This lack of relationship may point to the distinction between trait-based everyday mindfulness and state-based mindfulness in meditation.

Theories for Understanding Mindfulness

Self-Determination Theory (SDT) posits that awareness and attention are essential for control of behavior in ways that are consistent with one's values and beliefs. Mindfulness has been suggested to facilitate behavior that is consistent with one's psychological needs, like autonomy, competence, and relatedness. Mindful individuals have been shown to be less self-conscious, socially anxious, and ruminative. Mindful individuals have also been found to be more likely to act in accordance with their values and beliefs. In contrast, less mindful individuals are more likely to have reflexive, automatic responses such that the self is scrutinized, which may have maladaptive consequences. In line with this, research has shown that those high in mindfulness generally report higher life satisfaction (e.g. self-esteem, optimism, competence).

Another theory of how mindfulness facilitates well-being is Control Theory. This theory suggests that attention to and awareness of psychological, social, and physiological cues are essential to well-being. Support for this theory is shown through biofeedback research, which suggests that attention is crucial to reducing unhealthy physical ailments or illnesses. Specifically, when dysregulation occurs through reducing bodily signals (e.g. taking painkillers), attention is essential to reconnect awareness of the body's needs.

Measuring Mindfulness

Only in the last decade have scales been developed to measure mindfulness. Mindfulness measures are important to test both the efficacy of mindfulness in a clinical setting and the relationship of mindfulness with other well-known constructs (e.g. personality). The

Mindfulness and Attention Awareness Scale (MAAS) is one of the most widely used measures of mindfulness; however, critiques of this measure suggest the MAAS leaves out important aspects of mindfulness, such as non-judgmental and accepting attitude. Ruth Baer and colleagues developed two widely used measures, the *Kentucky Inventory of Mindfulness Scale* (KIMS) and the *Five Facet Mindfulness Questionnaire* (FFMQ). A more recent scale, the *Freiburg Mindfulness Inventory* (FMI), was developed in 2006 for a diverse sample. The FMI items were gathered through an extensive literature review and rated by experts.

Mindfulness measures have been found to have moderate to large positive correlations with each other. However, certain intercorrelations between test subscales are low or even negative, which may indicate that some scales are less reflective of the mindfulness construct, or that mindfulness needs to be better operationalized. At the very least, additional research on the operationalization and measurement of mindfulness would be useful.

Future Research

Given the many outcomes and critical variables associated with mindfulness, the volume of research on mindfulness is therefore not surprising; however, there are many avenues yet to explore. For instance, although it is clear that mindfulness and personality are related constructs, a more nuanced understanding of this relationship is an area for future research. Future research is needed to further explicate the nuanced relationship between mindfulness and personality traits at the facet level, as well as the independence of mindfulness beyond existing measures of personality. For example, it is unclear whether being mindful reduced neurotic tendencies or whether neuroticism impedes one from being mindful. Furthermore, although research suggests that individual differences are important in predicting mindfulness, future research could target specific psychological and social conditions that allow mindfulness to flourish.

Mindfulness research has been utilized in a wide variety of settings. For example, mindfulness has been adapted and implemented in many different evidence-based psychotherapies and is studied as an effective way to treat numerous mental disorders, including personality disorders, which have historically been treatment-resistant. Additionally, mindfulness has been a focus of workplace research, as mindfulness has been found to reduce stress and burnout and have positive effects on workplace relationships and adaptability in the workplace. Future research could further explore applicability of mindfulness in different settings.

See Also

Neuroticism
Self-control
Self-regulation

Further Readings

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Motivation (Achievement, Affiliation, Power)

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Introduction

Motivation is critical to performance and achievement, whether in education or at work. Within the confines of individual differences and measurement, motivation encompasses a wide range of constructs. Problematically, the substantive literature is relatively "fuzzy," lacking the established taxonomies and measurement models seen in other areas, such as personality and intelligence. This conceptual ambiguity is characteristic of the wider motivation literature, which is in need of a unifying general theory (Baumeister, 2016). We present a general organizational framework, including a brief overview of constructs and measurement issues. More in-depth reviews can be found elsewhere (e.g. Heggestad & Kanfer, 2000; Mayer, Faber & Xu, 2007).

Distinguishing Between Motivational Direction and Drive

The study of motivation seeks to address two fundamental questions about behavior: (1) *what* a person is motivated to do (what is the person's motivation?) and (2) *to what extent* he or she is motivated. The first question concerns the specific direction of motivation and the reasons for choosing this direction. The second question is independent of motivational direction; it concerns motivational level, typically conceptualized in terms of temporary motivational states.

To help organize and advance the area, Siegling and Petrides (2016) drew an explicit distinction between *motivators* and *drive*. The term motivators collectively refers to the various families of constructs that describe and explain a person's motivational direction, namely motives, needs, goals, interests, desires, and values. Motivators are the predominant focus of research and measurement in the motivation literature (Cattell & Kline, 1977; Mayer et al., 2007). The idea that different motivator families are similar and often used interchangeably was previously recognized by Hogan and Hogan (1996). Direct empirical

support for a unified classification of motivators comes from a relatively new measure, derived from existing measures of several of these overlapping families, specifically motives, goals, and values (Schönbrodt & Gerstenberg, 2012).

Drive, on the other hand, refers to the general level of motivation across time and situations. It differs from constructs representing a person's motivational direction, or motivators, in that it is not fundamentally tied to situations or any particular motivational area. Rather, drive is a superordinate and multi-faceted construct that manifests in various contexts (e.g. education, work, social interaction, and leisure) and subsumes interrelated motivational processes, such as planning and initiating action, sustaining effort, and enjoying these processes. For example, although drive and need for achievement (achievement motive) both implicate productive behavior and advancement, drive is not the pursuit of achievement per se but the dispositional capacity for doing things that culminate in advancement or development.

Furthermore, drive differs from specific motivational states (how much motivation a person has at any given moment) because it represents the baseline level of motivation, or the average of motivational states over time. A hypothetical illustration of the relationship between drive and motivational states over time is presented in Figure 1. In theory, a person's motivational state will be a more salient predictor of behavior in the immediate context; drive should be a better predictor of future motivational states and thereby of action in future situations. Representing a person's typical patterns in motivational affect, behavior, and cognition has some level of overlap with personality. Yet, a substantial share of drive is conceptually unique and unrelated to personality.

The difference between motivational direction and level is implicitly recognized in the study of goals. Researchers distinguish between goal content, which concerns the direction of motivation, and goal pursuit (the extent to which a person seeks to achieve goals), which is partly related to what we termed as drive. Factor analytic research confirms that motivators tend to cluster into multiple distinct dimensions (e.g. Bernard, Mills, Swenson, &
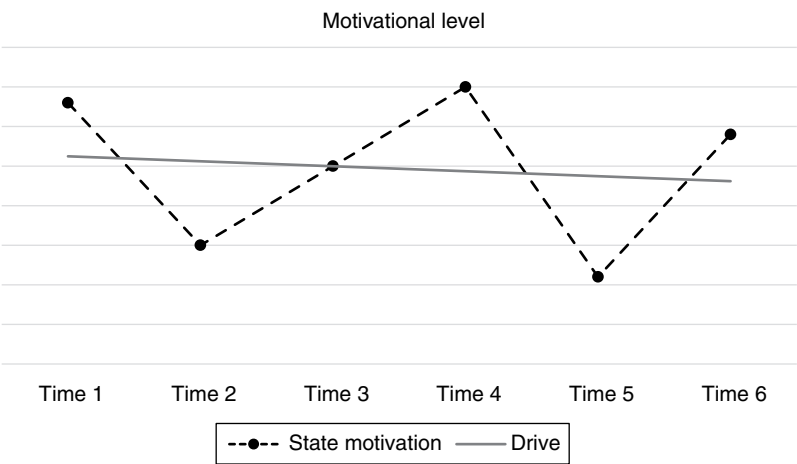
Figure 1 Drive (general motivational level) as the average of motivational states across time and situations.

Walsh, 2008; Reiss & Havercamp, 1998; Schönbrodt & Gerstenberg, 2012). In contrast, drive appears to be a superordinate and multi-faceted construct, as evidenced by measures designed specifically to assess it and measures of similar constructs.

Motivation Constructs and Measurement

Motivation constructs signify relatively stable person attributes that are typically assessed by means of questionnaires and projective measures. A few measures enquire about behavior in a specified period up to the present time (Fehnel, Bann, Hogue, Kwong, & Mahajan, 2004) or use other information, such as biodata, to infer what motives are presently driving the person (Mayer et al., 2007). Although undoubtedly related to drive or motivators, those measures primarily concern present motivational states. State motivation is a topic of special interest in industrial-organizational psychology, especially in the context of work engagement. Work engagement, which can be regarded as an outcome of motivation and other constructs, has been at the heart of the discussion of how to motivate people at work, a question also widely addressed in the popular literature by writers such as Pink (2009).

Motivators

There is an important distinction between implicit motivation (assessed using projective measures) versus explicit motivation (assessed using questionnaires and other methods), which relates to whether a given motive, goal, or value is held consciously or subconsciously. Furthermore, motivators have been categorized as approach motivation (engagement rewarded by positive outcomes) versus avoidance motivation (disengagement rewarded by avoiding negative outcomes) as well as intrinsic (from within) versus extrinsic motivation (via external incentives).

Several widely used measures assess a universal and comprehensive set of motivators (see Mayer et al., 2007), often involving combinations of the "Big Three" (McClelland, 1987): achievement (the desire to acquire new skills), affiliation (desire for social relationships), and power (desire for influencing and controlling others). Examples are the Personality Research Form, the Reiss Profile, and the Unified Motives Scales. Specific area measures assess motivators relevant to a particular context, such as work, academic, or athletic motivation.

Drive

Comprehensive measures of general motivational level also uncontaminated by motivators are difficult to find. Existing measures either integrate potential indicators of drive with motivator concepts (Liem & Martin, 2012), focus on current motivational levels (Fehnel et al., 2004), or measure related but not identical constructs with only partial overlap (e.g. grit, ambition, amotivation, goal pursuit). The Grit Scale, for instance, consists of two subscales that reflect drive (passion and perseverance), rather than any specific motivator.

Evidence from explicit measures of drive suggests that the construct comprises behavioral, cognitive, and emotional aspects beneath a superordinate construct (see also Hilgard's trilogy of mind, 1980). A hierarchical model was systematically derived from a comprehensive set of indicator traits, featuring 13 facets at the base, three aspects as the mid-layer, and the global drive construct at the apex (Siegling & Petrides, 2016). The three aspects can be labeled "effort," "passion," and "ideation."

Both versions of the measure showed adequate internal consistency and one-month test–retest coefficients of .62 (full form) or .70 (short form) (Siegling, Ng-Knight, & Petrides, 2019). Drive scores also evidenced alternate-forms reliability, cross-informant reliability, criterion validity, as well as convergent and discriminant validity (in relation to drive-like constructs and motives, respectively). Correlations with the Five Factor Model were at most moderate ($r = ..32$ to .47) and a distinct drive factor could be isolated in personality factor space. Drive scores also explained variance in well-being and work criteria over and above the NEO Personality Inventory Revised and the Hogan Personality Inventory. The concurrent and predictive effects on practical criteria (e.g. performance and achievement) remain to be investigated.

Future Directions

The distinction between drive and motivators introduces a broad organizational framework suitable for the study and measurement of motivation. Still, the different motivator families (motives, goals, interests, etc.) could be organized even better, using theoretical and empirical mapping techniques. With drive only in its infancy, the construct's nomological network will require further investigation. Following basic and eventually applied research, drive – like motivators – can meaningfully augment psychological assessments, such as in recruitment and talent management.

See Also

Cognition and Personality
Conscientiousness
David McClelland
Depressive Personality (Dysthymic Disorder)
Neuroticism

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Neuroticism, Personality Correlates of

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Introduction: What is Neuroticism?

In general, neuroticism refers to the tendency to be emotionally reactive with a disposition to experience negative affect (fear, sadness, embarrassment, anger, guilt, disgust). The trait definition of neuroticism includes factors of low ego strength (maladjustment, dissatisfied emotionality), excitability, depression, inability to face emergencies, anxious sensitivity, fatigue, lack of trust, suspiciousness, guilt proneness, worry, and high frustration-tension levels. Given these defining characteristics, neurotic individuals typically show a propensity toward worry, insecurity, instability, and self-pity.

Researchers have suggested that the conceptualization of neuroticism involves more than emotional distress, and that those high in neuroticism may experience other related traits and behaviors. Negative emotions not only produce emotional distress but can interfere with adaptation and consequently, individuals who experience these negative emotions are less able to control impulses and may act on irrational ideas. Related to impulses and irrational behavior, neuroticism has been positively correlated to instances of anger and aggression (e.g. aggression due to emotional instability), but there are occasions where aggressive behavior is not related to negative emotionality (e.g. aggression due to self-defense). Further, there is a negative relationship between neuroticism and psychometric intelligence (intelligence based on psychometric testing, e.g. IQ tests), whereby intelligence increases with decreasing neuroticism. In addition, test anxiety, defined as the combination of arousal, tension, worry, and fear of failure during test situations, is strongly negatively related to neuroticism. Thus, individuals that have test anxiety may consequently experience poor test performance.

In an evolutionary sense, there appears to be a fitness advantage to neuroticism. Although too much neuroticism can impair performance, an optimal amount of this personality trait can help to defend against threats. For example, pain signals threat to physical well-being, anxiety signals social or physical threat, and depression signals to

others that help is needed. As such, individuals differ in how they respond to threatening situations, which reflects variation in neuroticism. There is consistent support for the heritability of neuroticism, where 40–60% of the variation in the trait is attributable to genetic factors, 20–30% is due to non-shared environmental influences, and close to 10% is due to shared environmental influences.

Neuroticism in Personality Models

It is agreed upon by many researchers that neuroticism is a fundamental personality trait. Neuroticism is reliably accepted as an essential domain of personality functioning and structure, and there are only a few personality models that do not include it as a dimension. For instance, neuroticism is included in Eysenck's Personality Questionnaire (EPQ-R; Eysenck, 1985) which measures three broad personality traits (extraversion-introversion, neuroticism, and psychoticism), the Neuroticism-Extraversion-Openness Inventory (NEO-PI-3; Costa & McCrae, 1976) which also includes three dimensions (neuroticism, extraversion, openness), and the Big Five personality model (also known as the Five Factor Model; McCrae & Costa, 1987) which includes five dimensions (openness, conscientiousness, extraversion, agreeableness, neuroticism). In the Big Five personality model, neuroticism is composed of facets of anxiety, hostility, depression, self-consciousness, vulnerability, and impulsiveness. Additionally, meta-analyses conducted on correlations between the Big Five and dependency found measures of dependency most highly related to neuroticism compared to the other personality dimensions. Thus, individuals higher in neuroticism tend to be higher in dependency and need greater emotional support from others. The EPQ-R and NEO-PI-3 are the more popular measures of neuroticism.

The Dark Triad is a personality model that comprises three sub-clinical personality traits – narcissism, Machiavellianism, and psychopathy. Neuroticism is not significantly correlated with narcissism or Machiavellianism, but has relationships with psychopathy. Psychopathy is characterized by impulsiveness and callousness overall, but one can further differentiate between primary and secondary psychopathy. Primary psychopathy is characterized by selfishness, lack of interpersonal affect, and remorselessness. In contrast, secondary psychopathy is characterized by an anti-social lifestyle and behaviors, as well as a lack of impulse control. There are mixed findings with regards to the relationships between neuroticism and psychopathy in research. To begin, neuroticism has been found to be positively correlated with primary and secondary psychopathy. In contrast, neuroticism has also been found to correlate negatively with a more general measure of psychopathy.

Neuroticism and Health

Neuroticism is well applied in personality models, but it is most informative in applications of health because it is suggested to be a universal accompaniment of abnormal functioning. Unique correlations between neuroticism and disorders make the dimension useful in

diagnosing disorder-specific characteristics. For instance, neuroticism is associated with autonomic fluctuations (unconscious or involuntary irregularities) and hazardous health behaviors, thus, personality is linked to health and illness (e.g. neurotic individuals are more likely to display unhealthy behaviors such as smoking cigarettes).

Neurotic individuals are likely to be hypochondriacs and have a fear of illness and disease. Unfortunately, in addition to these irrational thoughts, they have a higher likelihood of developing various forms of psychopathology (post-traumatic stress disorder, schizophrenia, etc.) and a variety of physical illnesses (hypertension, diabetes, etc.) than individuals lower in neuroticism. Those higher in neuroticism respond more poorly to environmental stress, are likely to interpret ordinary situations as threatening, and tend to feel overwhelmed by minor frustrations. Neurotic individuals are often dissatisfied with their selves and feel inadequate, which leads to low ratings on measures of subjective well-being, academic satisfaction, job satisfaction, performance motivation, and self-efficacy. The causes of these associations between neuroticism and subjective experiences are still unclear and research in this area is limited.

Individuals higher in neuroticism typically consider themselves to be in poorer health than those lower in neuroticism, which may be due to greater self-focused attention and bias toward negative affect. Those who have greater self-focused attention are more likely to detect changes in their physical health, whether real or imagined. Research has shown that self-focused attention is a significant mediator of reporting symptoms in individuals high in neuroticism, which is a product of greater attentional bias toward negative information about the self. Thus, individuals on the high end of neuroticism tend to report more symptoms about the self.

Sex Differences and Correlations to Other Traits

In a study of neuroticism, the trait was measured in two ways. First, neuroticism was measured in natural language terms, namely adjectives (e.g. tense, anxious, nervous, etc.). Second, neuroticism was measured using traditional inventory items, namely sentences and descriptive phrases. Traditional inventory items include sex-free descriptions, which do not relate to the opposite sex (e.g. "Do lots of things annoy you?") as well as sex-related descriptions, which include the opposite sex (e.g. "Do you often feel lonely?"). No overall significant sex differences were found when natural language terms were used to measure neuroticism, which suggests that adjectives are better indicators of sex-free neuroticism than are traditional inventory items. Traditional inventory items may be more abstract and ambiguous due to their reliance on personality-relevant statements, which may lead to confusion in participants. Interestingly, women are consistently higher in neuroticism than are men in both sex-free and sex-related traditional inventory items (sex-free and sex-related items are described above).

Research has been conducted on neuroticism and one of the most highly studied personality traits: self-esteem. Self-esteem is defined as the state, trait, or attitude that one has toward the self. One study found a positive correlation between the measures of neuroticism and self-esteem, thus researchers assumed that both traits reflect a single underlying construct. This is not surprising because neuroticism and self-esteem have been included

in the same structure of past theoretical personality models. Another study measured the association between neuroticism and implicit and explicit self-esteem. In contrast to the previous positive population correlation found, this study observed a negative correlation between neuroticism and both implicit and explicit self-esteem. This negative correlation was consistent when both an experimenter and when a non-experimenter was used to observe neurotic behaviors. Thus, individuals high in neuroticism appear to be lower in implicit and explicit self-esteem.

In addition to personality traits, neuroticism has been studied using attachment styles. Attachment styles originate from early childhood experiences with a caregiver, and develop into individual differences in cognition, feelings, and behaviors that occur in adult relationships. Secure attachment styles develop in infants whose caregivers were present as a secure base during exploring and were available if the infant was in need. Secure individuals are comfortable with intimacy and autonomy as they mature. Anxious and avoidant attachment styles are grouped in insecure attachment. Anxious attachment styles develop when the caregiver is present but not always available to the infant. Anxiously attached individuals may value intimacy in relationships but are overly dependent on others. Lastly, avoidant attachment styles develop in infants whose care-givers were not present, and they become individuals who tend to prefer little intimacy and do not like to depend on others. To expand on these attachment styles and neuroticism, a moderately negative correlation has been found between neuroticism and a secure attachment style, whereas a positive correlation is evident between neuroticism and insecure attachment styles. Thus, individuals who are securely attached tend to be lower in neuroticism, and individuals who are anxiously or avoidantly attached are higher in neuroticism. Indeed, all five facets of neuroticism have exhibited a moderately positive correlation with an anxious attachment style.

Previous studies have shown that neural activity is influenced by neuroticism in early phases of affective processing, and that neuroticism is related to poor emotion regulation. This relationship then perpetuates the characteristics of neurotic individuals. Individuals higher in neuroticism experience greater reactivity to stimuli, which makes them more prone to vary their cognition and behaviors. Consequently, the brain activity in individuals higher in neuroticism differs compared to those lower in neuroticism. For individuals with higher scores in neuroticism, the brain region that shows considerable individual differences is the parietooccipital region of the right hemisphere. When individuals high in neuroticism process negative visual stimuli, more varied brain activity is observed in the right hemisphere in comparison to the left hemisphere. In particular, women, who have overall been consistently higher in neuroticism than men show greater differences between the two sides of the brain. Further, women who are rated higher in neuroticism show a generic activity pattern in the left frontal area compared to varied activity in the right, and women who are rated lower in neuroticism show fewer hemisphere differences with positive images. These findings suggest an interaction between neuroticism and negative visual stimuli, where neurotic individuals use different strategies for processing negative stimuli. In conclusion, the differences in hemispheric activity suggest that the left and right side of the brain contribute in unique ways toward affective processing in individuals high in neuroticism.

See Also

Anxiety
Big Five
Dark Triad
Personality and Health
Self-esteem, Expressions of

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Obsessive Personality

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Obsessions

Obsessions refer to unwanted, recurrent, and intrusive thoughts, impulses, and/or images that lead to marked anxiety and distress (Piacentini, Chang, Snorrason, & Woods, 2014). Obsessions commonly fall under a range of fear-related categories. For instance, obsessions may include fears about contamination, such as being concerned that one has been infected with pathogens. Obsessions may also include impulses to harm others or oneself, such as thoughts of stabbing a friend or family member. Excessive doubt obsessions may include being uncertain whether one has fully completed a task. Obsessions may involve disturbing images and thoughts, including images of violent scenes. Finally, obsessions may involve inexplicable experiences of incompleteness or feeling that things are not right, such as feeling that surroundings in one's environment are unsymmetrical (Piacentini et al., 2014). Obsessive symptoms frequently co-occur with compulsive symptoms, which are repetitive behaviors or mental activities that are intended to reduce anxiety associated with obsessions (Piacentini et al., 2014). For example, if an individual experiences contamination obsessions, they may engage in repetitive and excessive washing rituals to reduce their contamination-related anxiety (see Compulsions).

Obsessive symptoms have a complex neurobiological basis and etiological development. Structural abnormalities have been found in the frontostriatal neural circuits for individuals presenting with these symptoms. Furthermore, abnormalities in glucose metabolism and regional cerebral blood flow have been found in the basal ganglia, cingulate cortex, and orbitofrontal cortex of individuals with obsessive–compulsive related symptoms (Chamberlain, Blackwell, Fineberg, Robbins, & Sahakian, 2005). Both genetic and environmental factors play a role with influencing the etiology of obsessive symptoms. Twin studies have found that additive gene effects (i.e. the severity of obsessive symptoms is influenced by many genes that additively combine their effects) and non-shared environment (i.e. experiences that are not shared by both members of a twin pair) account for most of the variance in obsessive–compulsive symptoms (Taylor, 2011). Gene–environment

interactions significantly predict variance in obsessive–compulsive symptoms, and both obsessive–compulsive symptoms and negative emotionality have shared genetic variance (Taylor, 2011).

Theoretical Frameworks

There have been a number of theoretical frameworks proposed to explain the nature of obsessive symptoms. These include biological models, cognitive models, and cognitive-behavioral models.

Biological models emphasize the association of obsessive symptoms with functional and structural abnormalities in the brain, specifically the cortical-striatal-thalamic-cortical (CSTC) circuitry (Rosenberg, MacMaster, Mirza, Easter, & Buhagiar, 2007). Under the biological model, it is proposed that obsessive symptoms stem from an imbalance in the production and inhibition of thoughts relating to neural pathways within the CSTC circuitry.

Cognitive models note that obsessions are caused by misinterpretations of intrusive thoughts where one considers these thoughts to be highly significant. This valuing of intrusive thoughts as being highly significant results in an increase in obsessions. Under the cognitive framework, a dimensional perspective is taken where obsessions are extreme variants of obsessional intrusive thoughts.

The cognitive-behavioral framework, however, has received the most empirical support (Abramowitz, Taylor, & McKay, 2009). Under this framework, intrusive thoughts are considered normal aspects of the human mind; however, dysfunctional core beliefs lead to maladaptive appraisals of the intrusive thoughts (Piacentini et al., 2014). These maladaptive appraisals lead to emotional responses that play a role with developing and maintaining obsession symptoms. Collectively, these frameworks shed light on the complex biopsychosocial etiology of obsessive symptoms.

Abnormal versus Normal Obsessions

Experiencing concerns and anxious thoughts are common occurrences for many individuals. Encountering stressful circumstances and events are often daily occurrences and addressing experiences of stress and anxiety is a part of human experience. The ability to cope with one's stress and anxiety may be more difficult for individuals who have a predisposed sensitivity to anxiety, presenting a tendency to attribute anxiety and stress to more daily events (e.g. grocery shopping for an upcoming party, driving in rush-hour traffic, etc.) than would those who are better able to cope with anxiety and stress. Stressful or traumatic life events are known to influence the development of obsessive and compulsive related symptoms.

Intrusive thoughts and cognitions have been found to have a high incidence in typical populations, providing support for the division between normal and abnormal obsessions. In general, the distinction between normal and abnormal obsessions is dependent on the individual's ability to cope with and address these obsessional thoughts. Obsessional thoughts that may be experienced in a normal manner include intrusive thoughts that

provoke anxiety, but the individual is able to disregard these thoughts or resolve their experienced anxiety with minimal effort or disruption in their daily functioning. Situations in which individuals are unable to block out the unwanted obsessions warrant further clinical investigation.

Measuring Obsessions

There are several methods used to measure obsessions, and obsessions are commonly evaluated during the assessment process for Obsessive–Compulsive Disorder symptoms. These include diagnostic interviews, self-report measures, and questionnaire inventories administered by clinicians. Diagnostic interviews are used to differentiate between and assign diagnoses according to *Diagnostic and Statistical Manual of Mental Disorders, 5th edition* (DSM-V; American Psychiatric Association (APA), 2013). Self-report instruments allow for quick and independent administration to screen for symptoms; examples of these measures include the Obsessive Compulsive Inventory-Revised (OCI-R), the Yale-Brown Obsessive–Compulsive Scale-Self Report (Y-BOCS), and the Leyton Obsession Inventory Short Form.

Impact on Individuals

Obsessions have a significant impact on daily functioning in multiple capacities. By their nature, obsessions include images, thoughts, and ideas that continuously reoccur. Individuals experiencing obsessions may feel that they are unable to escape from their repetitive obsessions despite efforts to distract themselves and deter their thoughts. Focusing on obsessions may contribute to heightened anxiety and stress levels, making it difficult for individuals with obsessions to place full attention on tasks that they are completing in the work place, such as completing a business proposal, or in their home environment, such as planning and preparing for renovations. If obsessional intrusive thoughts significantly and regularly impair daily functioning, then an individual may be experiencing obsessions that are characteristic of psychological disorder.

Connection to Psychological Disorders

Several disorders include obsessions as a part of diagnostic criteria in the DSM-V (APA, 2013). Three notable disorders include Obsessive–Compulsive Disorder, Schizophrenia, and Autism Spectrum Disorder (ASD).

Obsessive–Compulsive Disorder (OCD) is a chronic, debilitating and severe clinical neurodevelopmental disorder that typically has onset in late adolescence to early adulthood (APA, 2013). Individuals with OCD experience obsessions due to a stressful event or for no apparent reason. These intrusive obsessions are more than excessive worries to the individual experiencing them and attempts to neutralize, suppress, or ignore the obsessions are made. Individuals with OCD recognize that their obsessions are not realistic and are merely

products of their mind; however, despite this knowledge, they struggle with controlling the obsessions. An individual with OCD will often engage in compulsions, or repetitive behaviors and mental acts, in response to their obsessions.

As a neuropsychiatric disorder, *Schizophrenia* involves interferences in social related-ness, perception, and cognition. The disorder is characterized by positive symptoms including disorganized speech/behavior, delusions, and hallucinations, as well as negative symptoms that include social withdrawal, anhedonia, and affective flattening. The presence of obses-sive compulsive (OC) symptoms in schizophrenia has been controversial, and it is thought that these symptoms may form an OC subgroup within the disorder. Individuals with schizophrenia may experience obsessions similar to those in OCD (e.g. contamination, reli-gious, aggressive, sexual) either with or lacking accompanying compulsions (e.g. cleaning, repeating, arranging). Further research is needed to understand the clinical and neurobio-logical significance of OC symptom presentation in schizophrenia (Hwang, Yum, Losonczy, Mitchell, & Kwon, 2006).

Autism Spectrum Disorders (ASD) is a neurological disorder characterized by impair-ments in social communication and interaction as well as restrictive interests and/or behavioral patterns. Those with ASD who experience obsessions may present an interest in a topic that has abnormal intensity and duration. For example, children with higher func-tioning ASD often learn many details about a topic they are extremely focused on (e.g. dinosaurs, construction vehicles), are preoccupied with this topic for a prolonged period of time, and display strong opinions toward it. Individuals with ASD may develop obsessions as a way to relax, cope with uncertainties, and use their obsessional interest as a way to converse and engage in social interactions. Additionally, those with ASD may also present sexual obses-sions involving perseveration on sexual themes as well as obsessions relating to stalking behaviors.

Treatments

Although it is difficult to fully eliminate obsessions, there are several options for treat-ment, including cognitive-behavioral therapy, pharmacotherapy, and brain modulation. Given that obsessions are intrusive thoughts, cognitive-behavioral therapy (CBT) is commonly used to treat obsessions. This form of therapy allows individuals to examine their obsessional thought patterns and consider alternative approaches to managing and eliminating these problematic thoughts. Foundational to CBT is the notion that obsessional intrusive thoughts are universal. CBT is the primary treatment for OCD and has been highly effective when combined with pharmacotherapy (Olatunji, Davis, Powers, & Smits, 2013).

Pharmacotherapy, also referred to as medication treatment, involves the action of pre-scription medications to block serotonin reuptake in the brain. Non-selective serotonin reuptake inhibitors (e.g. clomipramine) and selective serotonin reuptake inhibitors (e.g. citalopram, fluoxetine, paroxetine) are commonly used to treat OCD symptoms. Pharmacotherapy is most often effective when combined with other forms of psychological treatments, including CBT.

Brain modulation involves a range of techniques which include deep brain stimulation and transcranial magnetic stimulation. This form of treatment is often used to treat OCD symptoms in patients who do not respond to alternate treatment options. Brain modulation treatments involve sending electrical impulses to areas of the brain in an attempt to alter obsessive–compulsive thought and behavior patterns. Although brain modulation techniques have displayed promising results, further empirical research is needed to support their efficacy as an OCD treatment option.

See Also

Anxiety
Compulsive Personality
Irritability/Moodiness
Neuroticism
Obsessive–Compulsive Personality Disorder

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Optimism and Pessimism

Conceptualization, Personality Correlates, and Contextual Considerations

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Optimism and Pessimism: An Overview

As the implications and usefulness of positive psychology have gained momentum in the psychology literature, optimism and pessimism have become important constructs for understanding how positive and negative expectations may affect mental and physical health. *Optimism* is the disposition to have expectations of future outcomes that are generally positive, whereas *pessimism* is the disposition to have expectations that future outcomes will likely be negative. Importantly, optimism/pessimism is often understood as a personality trait because an individual's disposition toward optimism or pessimism remains relatively stable over time, given that no major negative life events or traumas occur. Optimism has been found to be inversely related with hopelessness and may also act as a buffer for the negative effects of stressful life events. Pessimism, on the other side of the spectrum, has been associated with maladaptive traits like obsessive–compulsive disorder (OCD) and neuroticism (Niemeyer, Moritz, & Pietrowsky, 2013). Moreover, researchers have consistently found that optimism has a positive effect on physical health outcomes, like cardiovascular health and immune response (Tindale et al., 2009), while pessimism has been associated with poor physical health outcomes, including immunosuppression and passive self-care (Van Dyk & Nelson, 2014).

Owing to the positive impact of optimism and negative impact of pessimism on numerous aspects of health, researchers have gained interest in identifying the characteristics of optimists versus pessimists. This chapter has three main goals: (1) to identify the different types of optimism and pessimism; (2) to review the current literature identifying personality traits that tend to be associated with optimism and pessimism; (3) to address the importance of thinking carefully about the conceptualization of these constructs and the role of culture when studying optimism and pessimism.

Types of Optimism and Pessimism

The research on optimism and pessimism has identified distinct types of optimism and pessimism. It is important to know these distinctions and how they may be correlated with different personality traits in order to better understand the impact and effects of optimism and pessimism. The most common conceptualization of optimism is *dispositional optimism,* or the stable, cognitive trait of positive future-thinking. *Situated optimism* defines the tendency for individuals to be more or less optimistic depending on the situation and personal needs. For example, an individual may be more optimistic in a situation where there is a much higher chance of a favorable outcome than in a situation where the likelihood of a positive outcome is very small. Furthermore, *unrealistic optimism* is the tendency for individuals to believe they are at a lower risk than their peers for adverse health outcomes across numerous domains, regardless if they have legitimate evidence to support this belief or not. Some research has found associations with unrealistic optimism and worse health outcomes because individuals do not take proper health precautions or seek treatment due to their unrealistic optimism (Weinstein, 1987), while others have not found convincing evidence to support the idea of unrealistic optimism being maladaptive (Harris & Hahn, 2011). Overall, it is important to identify the type of optimism being examined when discussing personality correlates. For instance, because the cognitive processes behind dispositional optimism and unrealistic optimism are quite different, different personality types may be more likely to have one type of optimism over another.

Pessimism has also been differentiated into different types. *Dispositional pessimism* is the constant personality trait of generally expecting negative outcomes. *Defensive pessimism* involves holding unrealistically low expectations in certain situations in order to gain control over anxiety and consequently perform better. This behavior can be seen as adaptive as it "highlights the need to account for the individual's capacity for interpreting situations strategically in order to emerge relatively unscathed" (Norem & Cantor, 1986, p. 1208). Thus, it is seen as useful for mental health in situations where the likelihood of a positive outcome is especially dire. Additionally, *unrealistic pessimism* is defined as the tendency for individuals to overestimate the likelihood of experiencing negative outcomes and expect more positive outcomes for their peers than themselves. For example, unrealistic pessimism has been associated with OCD, which can be especially maladaptive for mental and physical health (Niemeyer et al., 2013).

Identifying the distinct types of optimism and pessimism allows us to better understand how these cognitive functions may affect the behaviors and health of an individual. Some types of optimism are considered more adaptive than others, and some types of pessimism are considered more maladaptive. While much of the research has furthered our understanding of how optimism and pessimism affect psychological and physical health, it is less clear how these constructs are related to specific personality traits. Recent research has investigated this question, and we will review the findings in the next section.

Personality Correlates

One theory utilized by researchers to understand how optimism is related to various personality types is the well-validated theory of the Big Five personality traits. In one study, researchers found optimism to be associated with four of the five personality traits

(i.e. emotional stability, extraversion, agreeableness, and conscientiousness; Sharpe, Martin, & Roth, 2011). Indeed, optimism has commonly been linked to low levels of neuroticism and high levels of extraversion and positive emotionality (Boland & Cappeliez, 1997), and Milligan (2003) also found optimism to be positively associated with extraversion, agreeableness, and conscientiousness. On the opposite end of the spectrum, pessimists were found to have a personality profile consisting of high neuroticism and low levels of extraversion, agreeableness, and conscientiousness. Understanding these connections has allowed researchers to theorize potential pathways to optimism/pessimism that are created based upon the more influential presence of a Big Five personality trait. For example, Sharpe et al. (2011) argued that a more agreeable nature likely leads to optimism through better social relationships and satisfaction with life, and a more conscientious nature leads to optimism through believing in positive future experiences and working persistently in pursuit of goals.

Apart from the Big Five, optimism and pessimism have also been associated with other personality characteristics. Optimism has been linked to a slightly more dominant and warm interpersonal style (Smith, Ruiz, Cundiff, Baron, & Nealey-Moore, 2013) and more positive affect (Chang & Sanna, 2001). Pessimism, on the other hand, has been linked with higher levels of anxiety, more negative affect, and greater frequency of suicidal ideation (Hirsch, Walker, Chang, & Lyness, 2012). Optimists also tend to have more success with positive coping than pessimists, who often engage in avoidant coping (Taylor et al., 1992). Additionally, with regard to motivation, optimists tend to engage in approach motivation while pessimists are more likely to engage in avoidance motivation (Gibson & Sanbonmatsu, 2004). For example, this predisposition to approach motivation may be harmful for dispositional optimists in situations like gambling, where they may be more likely than pessimists to continue gambling if they are losing money. Moreover, defensive pessimists are likely to over-achieve and over-prepare, often resulting in positive outcomes due to their high motivation to avoid failing (Elliot & Church, 2003).

Overall, optimism tends to be associated with more extraverted and goal-oriented personality types, whereas pessimists tend to have more avoidant and neurotic personality traits. This knowledge is useful for interventions and treatment in that it allows clinicians to recognize an individual's predisposition for optimism or pessimism, and consequently help them use this level of optimism or pessimism to the benefit of their psychological health – be it through defensive pessimism or dispositional optimism.

Considerations for Optimism and Pessimism: Conceptualization, Culture, and Context

When thinking about optimism and pessimism, it is important to be aware of the debate over the conceptualization of this construct. Is it a bipolar, unidimensional construct or are they two distinct phenomena that should be measured separately? Scheier and Carver (1985) developed the Life Orientation Test (LOT), which measures optimism/pessimism as a unidimensional construct, with one end indicating optimism and the other end indicating pessimism. Other researchers, however, have found little overlap between optimism and pessimism and therefore argue that they should be measured as distinct constructs (Glaesmer et al., 2012). It is not the purpose of this chapter to cast a vote in one direction or

the other, but it is important to note the implications of conceptualizing pessimism as simply the lack of optimism versus seeing it as its own personality dimension. With regard to treatment and intervention, knowing how an individual's personality disposes him or her to view future expectations, or how he or she is likely to pursue goals based on an optimistic or pessimistic nature, can be very helpful for therapists and clinicians when deciding on treatment plans. Regardless of how the measure is conceptualized, it is important to take the researcher's constructs thoughtfully into account when interpreting findings in the optimism/pessimism literature.

It is also important to consider cultural differences when discussing optimism and pessimism. When looking through a Western lens, it is easy to criminalize pessimism and see it as extremely maladaptive while optimism is extremely adaptive. However, this may not be the case in all cultures. For example, Chang (1996) suggested that pessimism might not be as detrimental for Asian Americans as it is for European Americans. Moreover, levels of optimism and pessimism may differ by culture and region. For example, individuals from Eastern cultures are more likely to have positive expectations for others and negative expectations for themselves. This is likely due to the collectivist culture that is developed in most Eastern societies, which emphasizes others and the community, rather than the individualistic society often found in Western cultures. Sources of optimism may also be different based on culture. In one study, Kuwaitis reported greater spiritualized hope than Americans, suggesting their optimism is likely more faith-based than Americans' optimism (Abdel-Khalek & Scioli, 2010). Taken together, these findings suggest that culture is an essential variable to consider when studying optimism and pessimism in people of all cultures, races, and religions.

Next Steps

The study of optimism and pessimism is essential to understanding how our disposition to think positively or negatively about the future can affect all aspects of our lives. Discovering the effects of optimism and pessimism in individuals is useful for both mental and physical health treatments because it allows us to see how this personality trait can impact the outcomes of clients. More research is needed to further understand how these personality traits are correlated and how they work together to produce adaptive or maladaptive behavior. Further work is also needed to try and solve the debate over how to conceptualize optimism/pessimism. Lastly, it is necessary to continually keep culture in mind when moving this field forward. There is more nuance and complexity to optimism and pessimism than just positive or negative thoughts, so learning how these dimensions affect our emotional and physical functioning has positive implications for more effectively improving the overall well-being of individuals.

See Also

Optimism/Pessimism, Assessment of
Optimism/Pessimism Carver & Scheier Theory

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Perfectionism

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Frost et al.'s (1990) Multidimensional Perfectionism Scale

Frost et al. (1990) conceptualized perfectionism as being composed of six dimensions: *personal standards* (e.g., "I set higher goals than most people"), *concerns over mistakes* (e.g., "People will probably think less of me if I make a mistake"), *doubts about actions* (e.g., "I tend to get behind in my work because I repeat things over and over"), *organization* (e.g., "I am a neat person"), *parental expectations* (e.g., "Only outstanding performance is good enough in my family"), and *parental criticisms* (e.g., "As a child I was punished for doing things less than perfect"). Individuals with high concerns over mistakes perceive minor flaws in their work or performance as indicative of failure. According to Frost et al. (1990), concerns over mistakes cause perfectionists to strive for success to avoid failure, rather than a need for achievement. People with high doubts about actions have nagging uncertainties about the quality of their performance. Doubts about actions also lead perfectionists to repeat tasks, as well as causing a reluctance to complete tasks. People with high personal standards strive toward unrealistically lofty goals. According to Frost et al. (1990), personal standards are not in and of themselves pathological and may stem from a positive outlook on life. Individuals with high parental expectations are theorized to have grown up in environments where obtaining parental approval and love was conditional on their performance. Moreover, people with high parental criticism are theorized to have grown up in environments where parental figures engaged in harsh criticisms whenever performance was less than perfect.

Subsequently, research supports personal standards, doubts about actions, and concerns over mistakes as core characteristics of perfectionism. Indeed, factor analytic investigations suggest concerns over mistakes is the cornerstone of perfectionism, as it consistently emerges as the "strongest" factor. In contrast, organization is only weakly related to the other perfectionism dimensions (e.g. concerns over mistakes) and thus is not considered a core characteristic of perfectionism. Furthermore, organization is a facet of conscientiousness. Accordingly, the inclusion of organization as a component

of perfectionism is problematic. Perfectionism researchers also no longer consider parental criticism and parental expectations as facets of perfectionism, as parental criticism and parental expectations represent developmental antecedents, not core characteristics, of perfectionism.

Hewitt and Flett's (1991) Multidimensional Perfectionism Scale

In consideration of the social and personal dimensions of perfectionism, Hewitt and Flett (1991) distinguished between three overlapping, albeit non-redundant, forms of perfectionism: *self-oriented perfectionism* (e.g. "One of my goals is to be perfect in everything I do"), *socially prescribed perfectionism* (e.g. "My family expects me to be perfect"), and *other-oriented perfectionism* (e.g. "If I ask someone to do something I expect it to be done flawlessly"). Self-oriented perfectionism involves self-directed behavior and internally motivated beliefs that it is important to be flawless, and strive for perfection. People with high self-oriented perfectionism set lofty goals, strive to do everything perfectly, and have overly negative reactions when their performance falls short of their standards. In contrast, socially prescribed perfectionism is a social evaluative tendency to believe that being perfect is important to others and that others will be disappointed if they fall short of their expectations. Both self-oriented and socially prescribed perfectionism involves harsh criticism of the self. However, self-oriented perfectionists are critical of their own behaviors and performance, whereas socially prescribed perfectionists perceive that other people are critical of their behavior and performance.

Other-oriented perfectionism is an outwardly directed form of perfectionism in which one harshly demands perfection from other people. Compared to self-oriented perfectionism and socially prescribed perfectionism, other-oriented perfectionism does not involve self-criticism. Other-oriented perfectionists tend to be highly critical toward others, which leads to a plethora of interpersonal problems such as low relationship satisfaction. Historically, other-oriented perfectionism has received less attention than self-oriented perfectionism and socially prescribed perfectionism. Despite this, there has been a renewed interest in other-oriented perfectionism, in part due to research suggesting it is a defining feature of narcissism (Smith, Sherry, Chen et al., 2016).

The Two-Factor Model of Perfectionism

Theory and evidence have converged to suggest that two higher-order factors underlie and account for shared variance among many of the lower-order facets proposed by Hewitt and Flett (1991) and Frost et al. (1990). This model is referred to as the Two-Factor Model of Perfectionism and stems from the finding that when Hewitt and Flett's (1991) and Frost et al.'s (1990) Multidimensional Perfectionism Measures are factor analyzed, results consistently reveal a two-factor solution. One factor, referred to as *perfectionistic strivings*, accounts for shared variance between self-oriented perfectionism and personal standards. A second factor, referred to as *perfectionistic concerns* (or self-critical perfectionism),

accounts for shared variance among socially prescribed perfectionism, concerns over mistakes, doubts about actions, and self-criticism. Research supports the validity of the Two-Factor Model of Perfectionism. The two-factor model emerges across a variety of different perfectionism measures (e.g. the Clinical Perfectionism Questionnaire), and generalizes across non-English speaking populations. Many also consider perfectionistic strivings to be a positive form of perfectionism and perfectionistic concerns to be a negative form of perfectionism.

Indeed, perfectionistic strivings and perfectionistic concerns correlate positively ($r_{xx} = .45$ to .65), but nonetheless, have divergent patterns of associations with positive and negative psychological outcomes. In general, after removing the overlap with perfectionistic concerns, perfectionistic strivings are associated with positive outcomes such as test performance. As such, perfectionistic concerns appear to suppress the association between perfectionistic strivings and positive psychological outcomes. However, it is important to note perfectionistic strivings are not solely associated with positive psychological outcomes. For instance, perfectionistic strivings are tied to narcissistic grandiosity (Smith, Sherry, Chen et al., 2016) and place people at risk for increased depressive symptoms (Smith, Sherry, Rnic et al., 2016).

In contrast, perfectionistic concerns are clearly a negative form of perfectionism, robustly related to negative outcomes such as paranoia, negative affect, procrastination, low trait emotional intelligence, suicidal ideation, and interpersonal problems. Also, perfectionistic concerns have strong theoretical and empirical links with Axis I disorders (e.g. depression; Smith, Sherry, Rnic et al., 2016). Research suggests perfectionistic concerns are maintained and manifested through insecure expressions such as intimacy avoidance, disengagement from decisions and actions, and suspiciousness.

But what causes the divergent pattern of positive and negative associations between perfectionistic strivings and perfectionistic concerns? In part, perfectionistic strivings and concerns divergent patterns of correlations can be accounted for by individual differences in the use of coping strategies when confronted with a perceived stressor. Specifically, perfectionistic concerns are strongly related to the use of maladaptive coping strategies (e.g. emotion-oriented coping) that subsequently inhibit effective regulation of day-to-day stressors and consequently, increase the likelihood of experiencing maladaptive psychological outcomes such as depression. Conversely, perfectionistic strivings are associated with the use of adaptive coping strategies (e.g. task-oriented coping), which facilitate effective stress regulation, and increase the likelihood of experiencing positive psychological outcomes such as life satisfaction.

Confusion often arises in regard to whether perfectionism is a form of conscientiousness. While perfectionistic strivings in many ways are a form of "hyper-conscientiousness," perfectionistic strivings also contain characteristics that fall outside the domain of conscientiousness, such as a compulsive need for things to be perfect and precise. In contrast, perfectionistic concerns are associated with neuroticism and low agreeableness but contain additional components capturing variance related to feelings and thoughts that others place unduly harsh demands on them to be perfect. Finally, it is notable that perfectionistic strivings and perfectionistic concerns add incrementally to the prediction of numerous psychological outcomes, such as depression, above and beyond the five-factor model of personality.

Within-Person Combinations of Perfectionistic Strivings and Perfectionistic Concerns

For the vast majority of people, perfectionistic strivings and perfectionistic concerns co-occur and produce three meaningful within-person subtypes: adaptive perfectionists (high perfectionistic strivings and low perfectionistic concerns), maladaptive perfectionists (high perfectionistic strivings and high perfectionistic concerns), and non-perfectionists (low perfectionistic strivings). This is referred to as the Tripartite Model of Perfectionism. Research indicates that relative to adaptive perfectionists and non-perfectionists, maladaptive perfectionists experience significantly higher levels of depression, anxiety, stress, and negative affect. Moreover, some research suggests that adaptive perfectionists experience greater life satisfaction than non-perfectionists. When asked to describe themselves, adaptive perfectionists report living fast-paced lives, working tirelessly toward goals, striving for superiority, and being forceful, dominant, and socially ascendant. In contrast, maladaptive perfectionists report being easily discouraged, inept, cynical, lonely, and prone to anger and frustrations.

Clinical Implications of Perfectionism

Perfectionism has been shown to play a significant role in the development and maintenance of various forms of psychopathology. For instance, perfectionism has been positively related to an array of anxiety disorders, such as panic disorder, agoraphobia, general symptoms of anxiety, and worry. The most robust relationship appears to be between perfectionism and social anxiety, and perfectionism has been posited to play a central role in cognitive models of social phobia. Perfectionism has also been shown to play an important role in the development of obsessive–compulsive disorder. In addition, numerous studies have indicated a positive association between perfectionism and depression (e.g., Smith, Sherry, Rnic et al., 2016). This relationship may be mediated by a number of factors including perceived control and self-esteem. Moreover, perfectionism has been associated with increased levels of hopelessness and suicidality. Perfectionism is also thought to be a key factor with regard to eating disorders, and has been identified as a specific risk factor for the development of both anorexia nervosa and bulimia nervosa. Likewise, perfectionism is considered a hallmark feature of, and is included as one of the diagnostic criteria for, obsessive–compulsive personality disorder.

   Perfectionism also interferes with the efficacy of many psychological treatments. Higher levels of perfectionism have been shown to be negatively associated with therapeutic outcomes and are related to challenges with establishing an effective therapeutic relationship between the client and the therapist. Specific dimensions of perfectionism have been shown to be directly linked to psychological distress and are uniquely associated with various forms of psychopathology and maladjustment. For instance, socially prescribed perfectionism is the component of perfectionism that is most consistently linked with negative psychological outcomes, including depression, anxiety disorders, personality disorders, low self-esteem, and suicidality. Self-oriented perfectionism has been associated with depression, eating disorders, suicidal ideation, as well as academic and achievement

problems. In contrast, other-oriented perfectionism has been linked with low relationship satisfaction and poor dyadic adjustment. Furthermore, consistent findings have been found suggesting that it is the negative self-evaluative dimension of perfectionism that is most closely associated with psychopathology.

Conclusion

Perfectionism is a multidimensional construct, predominantly measured by Frost et al.'s (1990) and Hewitt and Flett's (1991) Multidimensional Perfectionism Scales. Based on these measures, a two-factor model of perfectionism has been proposed which includes perfectionistic strivings and perfectionistic concerns. Likewise, perfectionism and its trait dimensions act as vulnerability factors in various forms of psychopathology, such as depression. Future research should continue to investigate the dimensions of perfectionism in relation to one another and explore the mechanisms by which these dimensions relate to important psychological outcomes.

See Also

Conscientiousness
Narcissistic Personality Disorder

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Persistence, Personality Correlates

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Definition of Persistence

Persistence could be defined as a personality trait related to perseverance in the pursuit of purposes in spite of fatigue or frustration and in the seeking of rewards even when the expected outcome is only rarely successful (Cloninger, Svrakic, & Przybeck, 1993). In other terms, persistence refers to a construct that includes the ability to maintain a high motivation to reach a goal, also in the absence of an immediate external reward.

Over the last 20 years, persistence has emerged in psychology as a pattern of attitudes that facilitates goal achievement and it could be considered a higher order construct that contains several psychological aspects including eagerness of effort, work hardenedness, ambition and perfectionism. Individuals with high levels of persistence tend to be perseverant, well-motivated, hard-working, and persistent; they tend to respond to signals of anticipated reward and to intensify their efforts in return for anticipated reward; they usually offer themselves as volunteers to do something; they desire to work on different aspects and they tend to work harder when faced with problems in their work; they are generally disposed to make sacrifices to obtain success; they are able to persevere in a perfectionistic way in response to intermittent reward. Besides, high levels of persistence seem to be linked to stability, alacrity, industriousness, and sense of duty.

Persistence has been studied in different fields of psychology, including personality, psychobiology, psychopathology, and organizational psychology.

Measurement of Persistence

Persistence can be measured with specific scales or multidimensional questionnaires (Temperament and Character Inventory, also in its revised form; Self-Control Measure; Action Control Scale).

The most popular measure to assess persistence is the Temperament and Character Inventory-Revised (TCI-R). The TCI-R is a 240-item self-administered questionnaire designed to measure the dimensions of four temperaments (Novelty Seeking, Harm Avoidance, Reward Dependence and Persistence) and three character factors (Self-directedness, Cooperativeness, and Self-transcendence).

Subtypes of Persistence

Subtypes of persistence reflect the manner in which individuals express the characteristics of persistence. Expressions of persistence could be perseverance in achieving tasks despite tiredness and the continuing expectation and pursuit of rewards even when the expected outcome is only rarely successful (Cloninger et al., 2013). Other expressions of persistence can be determination (the quality of being resolute and firm in reaching goals), conscientiousness (care taken in doing what you are supposed to done) and ambitiousness (eagerly desirous of achieving or obtaining success). Besides, perfectionism is another aspect of being persistent that can be defined as the striving for flawlessness and reaching high performance standards, and at the same time a critical self-evaluation (Flett & Hewitt, 2002).

Other characteristics of persistence are the quality of being eager for efforts and the tendency to work hard. By contrast, people with low levels of persistence are described as changeable, irresolute and easily discouraged (Cloninger et al., 1993).

Similarities of Persistence to Other Constructs

In the sphere of personality and individual differences, the dimensions that would appear most similar to persistence are those of grit, industriousness, tenacity, hardiness, endurance, and ego-strength.

Grit can be defined as perseverance and passion for long-term goals. Although perseverance is considered in the construct of grit, it seems related to sustained efforts in projects that take a long time to complete; this emphasis on long-term projects is not present in the construct of persistence which seems more oriented toward a perseverance in reaching goals despite frustration. In fact, in persistence the role of sacrifice in the pursuit of purposes seems to be stronger than in the grit construct, while grit seems to pay more attention to the consistency of interests.

The construct of industriousness is also related to perseverance and determination in performing a task, but following the learned industriousness theory, industriousness is developed over time through a history of reinforcement. Unlike, persistence does not seem necessarily linked to any kind of reinforcement.

With regard to tenacity, that comes from scheduling a goal beforehand, persistence does not necessarily pay attention to the pursuit of an intended goal in advance; besides this, tenacity is expressed most strongly in goal domains that are central to the person's identity or life design, as well as in areas of performance. In addition, it seems that tenacity would

be more focused on the extrinsic motivation, while persistence seems to be a part of intrinsic and also extrinsic motivation.

Another construct that presents similarities with persistence is hardiness, namely a personality construct that describes people who tend to remain healthy under pressure and which includes several components like commitment, control, and challenge. These aspects of the hardiness construct, which arose from existential psychology, seem to help individuals face stressful situations and remain healthy under stress, unlike persistence that is goal-oriented and allows the individual to change their positive situation (context) through the achievement of the objective.

As regards endurance, which could be defined as the habit of finishing what someone has already started, it is possible to view it as a basic trait of persistence; this indicates that probably the endurance dimension could be part of the higher order construct of persistence.

Another construct that presents similarities with persistence could be that of ego-strength, derived from a clinical theoretical tradition. Ego-strength is the capacity to maintain emotional stability, to cope with stress, and to defer gratification; in clinical psychology, it is useful to identify subjects which can benefit from psychotherapy. Persistence, despite having similar aspects with ES, seems more focused in the perseverance of pursuit of goals.

Explanations of Persistence

Explanations of persistence include, biological, personality, and psychopathological contributions.

Biological Correlates of Persistence

Studies have converged on the finding that individual variations of personality dimensions are widely genetically determined (Cloninger, 2000).

According to Gardini and colleagues (2009), personality dimensions such as novelty seeking, harm avoidance, and persistence seem to be heritable, with 25% of variation transmissible from parent to child, and another 25% of variation dependent on non-linear interactions among multiple genes (Cloninger, 2000), relatively stable across time, and dependent on genetic and neurobiological factors (Gardini, Cloninger, & Venneri, 2009).

Neuroscience research suggests that the neural circuitry underlying these systems is at least partially localized; people with the highest persistence scores had increases in activation in orbitomedial prefrontal cortex and ventral striatum (Gardini et al., 2009). Moreover, a significant positive correlation was found in the right paracentral lobule and parahippocampal gyrus, and in the left precuneus (Gardini et al., 2009). Likewise, it seems that specific groups of genes played a role in some personality traits and persistence had the highest variance explained for serotonin genes (e.g. Cloninger, 2000); higher persistence scores have been associated with the short allele of the promoter of the serotonin transporter and homozygosity in catechol O-methyltransferase (val/val or met/met genotypes) (e.g. Cloninger, 2000).

Personality and Psychopathology Correlates of Persistence

Persistence is one of the most controversial temperamental traits; high levels of persistence seem to be linked to stability, alacrity, industriousness, sense of duty and perfectionism, but can become maladaptive when the contingencies change rapidly.

In fact, on the one hand, highly persistent people also tend to be perfectionists, or at least feel they need to be the best at whatever they try to do (Fleet & Hewitt, 2002), without paying attention to the fact that this perfectionism and the exaggerated positive expectations can easily lead to compulsive self-doubt and excessively harsh judgments of themselves and others (Cloninger et al., 2012).

Some authors have suggested that persistence could be the key to discriminating people with anxiety disorders from those with mood disorders (Cloninger et al., 2012). This strong discriminant effect is the result of high persistence increasing both negative emotions and positive emotions in the same person (Cloninger et al., 2012). In other words, high persistence protects against mood disorders by increasing some positive emotions (such as happiness and being interested, active, and enthusiastic) but, at the same time and in the same person, it can increase the risk of anxiety disorders by enhancing negative emotions (such as feeling distressed, scared, upset, and nervous) (Cloninger et al., 2012).

With regard to affective disorders, a study showed that low persistence was a strong predictor of future depressive episodes and was also predictive independently of the baseline level of depression, providing prognostic value (Rosenström et al., 2014).

Some studies have also found that persistence was associated to conscientiousness (De Fruyt, Van De Wiele, & Van Heeringen, 2000), resilience, and positive emotionality.

Other researchers found that persistence was correlated to life satisfaction, happiness, and social support (Cloninger et al., 2011). Additionally, persistence was moderately and positively associated with the trait of self-transcendence measured with the Temperament and Character Inventory (TCI) and was negatively correlated with psychoticism in Eysenck's model (De Fruyt et al., 2000).

Dealing with Persistence

An important condition that allows high persistence to increase happiness occurs when people are highly accepting of themselves and others, with other characteristics like high self-directedness, high co-operativeness, and high self-transcendence; it seems that each of these traits can increase components of well-being (Cloninger & Zohar, 2011) and prevent the development of mood disorders, in particular depression (Rosenström et al., 2014). Although persistence is not a disorder, low persistence seems to be a strong predictor of future depressive episodes (Rosenström et al., 2014) and probably can contribute to sufficient affective discomfort and problems in personal lives. Indeed, people with low persistence seem to be changeable, irresolute, and easily discouraged. Approaches to helping individuals to enhance their persistence are probably those that focus on strengthening the human potential, like counseling or specific programs to increase self-motivation and perseverance. In our view, approaches to helping individuals to improve their persistence could be focused on the various subtypes and aspects of persistence. At first it could be important to understand if deficits concern the inability to identify the right signals of reward (cognitive), or are due to

an inability to recognize negative emotions such as distress, guilt, nervousness, or are derived from a lack of ambition or frustration tolerance. Concerning the inability to identify the right signals of reward it could be possible to train the subject to recognize the right incentives and give them a proper meaning, through positive or negative reinforcements. In the case of inability to understand emotions and the presence of negative emotionality, an emotional education program and training on how to change negative emotional states to positive ones could be the right approach.

See Also

Conscientiousness
Grit
Goals and Motives
Self-Regulation
Sensation Seeking
Impulsivity

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Personality Development

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Personality can be seen as an organized way of feeling, thinking, and behaving which typifies a person's lifestyle and adaptation in a given society or culture. Even though personality has relevant elements of stability, it is not immutable, as it evolves throughout the lifespan by showing evidence of both continuity and change. The idea that personality is set in childhood and adolescence, and that it fully develops by the age of 30 has been maintained for a long time. On the contrary, current studies show that during midlife and old age mean-level developmental change of personality traits still occurs. Personality develops from a series of complex interactions between genotypically driven differences and environmental factors, which progressively lead the early temperament dimensions to develop into the personality traits observed in the different phases of life. Although little is known about how early-emerging individual differences become elaborated into what we call personality, there is a general consensus around the idea that the development of personality follows a dynamic and gradual course, rather than a clearly defined progression of discrete stages. At the same time, from a lifespan perspective this process shows enough structure and direction, marking progressive change and continuity throughout childhood, adolescence, adulthood, midlife, and old age, although trait instability might be more pronounced in certain life phases than others. However, not all individuals show the same developmental pattern over time, as there might be inter-individual differences in the direction, rate, and time of intra-individual personality change.

Infancy and Childhood

In the first few weeks of life, infants begin to show distinct individualities in their temperament, in their self-regulatory behaviors and in their predisposition toward positive and negative emotions: these elements constitute the basis from which personality develops. Contemporary interest in the patterns of temperamental development is largely due to the

insightful work of Chess and Thomas (1987), whose research had a substantial impact on the developmental study of temperament (see pages 1491–1496 of this volume for a more detailed discussion of temperament). As for adult personality, temperament in infancy and early childhood is influenced by both genetic contributors and environmental experiences, such as those with peers and educational system. Among the environmental factors, parents' responses to their infant's temperament are assumed to play a crucial role on the evolution of personality, with important long-term consequences. In fact, parents' responsive attitude influences relevant evolutionary goals in personality development, such as the quality of the caregiver-infant attachment bond (Ainsworth, 1979; Bowlby, 1980). Observational longitudinal studies on caregiver-infant relationships also found that caregiving behaviors impact the stabilization of early temperamental characteristics. For instance, inhibited children receiving intrusive, derisive, or overprotective parenting remain more consistently inhibited across time compared to inhibited children receiving other responses from their caregivers; parenting is also relevant for the development of an effective regulation of negative emotionality which is crucial for good attentional control, whose bias is implicated in higher levels of Neuroticism in adulthood. In a similar fashion with other aspects of development, as infants move into childhood their set of individual differences increasingly broadens and becomes more complex given the progressive acquisition of new and more sophisticated skills, and with the emergence of an agentic, goal-directed, self.

Adolescence

Adolescence can be seen as a relevant period for personality development, particularly given its rapid biological, social, and psychological transformation. Even though adolescence's boundaries have become increasingly difficult to define, pubertal biological changes, which appear around age 11 for girls and age 13 for boys, can be seen as markers of its beginning. Puberty has many influences over individuals' personalities, some of which are gender-specific, like in the case of the first signs of depression observed particularly in girls, and an increase in antisocial behavior recognized especially in boys. As children move into adolescence, their goals and motives become crystallized, and they become able to evaluate the worth and progress of the projects they set in many areas of their lives, such as friendship, school, and sport. These goal-directed tendencies structure their consciousness and shape their behavior across situations and over time. Yet, the emergence of self-esteem on the verge of this period of life has implications for the development of dispositional traits like extraversion and neuroticism. Adolescents work to establish coherent identities, and they develop more complex, abstract, and better differentiated self-concepts, thus revealing a rich and articulated portrait of psychological individuality. Normative changes in both youths' relationships with adults and peers, and in their attitudes toward social values and norms also emerge and shape identity development and exploration of different roles and possibilities. This is the time of life when the structure of personality begins to stabilize. Cross-sectional studies on the Big Five framework revealed that adolescents are higher in Extraversion and Emotional Stability and lower in

Agreeableness and Conscientiousness than adults. Additional evidence suggests that Openness increases in both cross-sectional and longitudinal studies.

Adulthood

During the period of "emerging adulthood" (i.e. ages 15 to 30; Arnett, 2000) people undergo a process of role changes which is in part historically and culturally determined. Most men and women are more prone to respect norms, become more socially competent, and less impulsive. The idea of normative developmental changes in personality functioning toward greater adaptation implies that with age individuals show a gradual shift upward in those dispositional traits associated with agreeableness, conscientiousness, and openness, and a decline in neuroticism. Both longitudinal and cross-sectional studies using multiple birth cohorts, with samples having different Western cultural backgrounds, supported the idea of normative changes in personality. Normative changes are categorized by significant individual differences which are influenced by several factors, such as gender. The existence of individual differences in change suggests the hypothesis that certain life experiences, including work and relationships, differentially contribute to normative developmental changes as well as shaping life trajectories and a person's adaptation during this time. From early to middle adulthood, people gradually appear to become more comfortable with themselves as adults, less inclined to moodiness and negative emotions, more responsible and caring, more focused on long-term tasks and plans, and less susceptible to extreme risk-taking and the expression of unbridled internal impulses. Longitudinal findings on personality change in adulthood showed that the increase in Openness and decrease in Emotional Stability continue for a while during young adulthood. Cross-sectional studies revealed that later on, Openness and Extraversion tend to decrease moderately until the age of 30 and more slowly thereafter, while Agreeableness, Conscientiousness, and Emotional Stability show a tendency to increase.

Midlife and Old Age

Studies on aging suggest that personality development might differ in different phases of midlife as a result of changes in life challenges, including a progressive shift from the establishment of new social roles to the maintenance and mastery of these roles. In early-old age, biological losses are present and noticeable, but as the end of one's life becomes more prominent they become remarkable. The rank-order stability of personality has been found to be lower in older adults than in younger ones, and the former have been also found to show stronger decreases in intellect, comparable with openness to experience, and agreeableness than those at the beginning of old age. Dealing with losses, such as the death of their partner, adjusting to a decline in overall health and to retirement, comprise the major developmental tasks of older adults. The experience of physical and cognitive decline occurring during this phase of life may lead individuals to select strategies for accomplishing goals that optimize their best skills and compensate for areas of weakness. At some point in the midlife years, adults appear to shift their perspective on life from one emphasizing expansion,

activeness, and information seeking to one emphasizing contraction, protection, and the quality of emotional life. With regard to this, there is evidence attesting that during midlife Conscientiousness and Agreeableness rise to their apex and Neuroticism may bottom out. Gender-specific findings show that during midlife, both males and females longitudinally decrease in Extraversion and increase in Emotional Stability, but only males decrease in Conscientiousness and Openness and only females increase in Agreeableness. Inter-individual differences in this process are reflected in the timing of this shift, in its domains of emergence, which can change among individuals. Similarly to the precedent phases of life, these personality changes arise from the continuous interaction between the individual and the environment.

See Also

16 PF, Correlates of
Big Five
Culture and Personality
Dark Triad
DSM-V
Genetic Bases of Personality
General Personality Factor
Temperament, Personality Correlates of

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Phobia

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Conceptualization and Diagnosis

Phobia is classified as an anxiety disorder in the Diagnostic and Statistical Manual of Mental Disorders, 5th edition (DSM-V; American Psychiatric Association, 2013), and is marked by an overwhelming fear of an object or situation disproportionate to the actual danger present. There are a number of criteria required to warrant a diagnosis of phobia. Persons suffering from phobia experience intense anxiety immediately upon coming into contact with the feared object or situation, which may lead to panic attacks. The feared object or situation is either endured with extreme fear or actively avoided. Active avoidance of the fear interferes in the person's daily life, causing distress and disruption in everyday activities. Phobic persons, for instance, may take a longer route to work every day specifically to avoid encountering their fear, or refuse an apartment in a certain area of town. If, however, someone has a strong fear of a certain object (e.g. snakes), but does not encounter it in their daily life, this would not classify as a phobia. To be diagnosed with phobia, the fear must last a minimum of six months and the symptoms exhibited must not be explainable by any other mental disorder.

There are three types of phobia: specific phobia, social phobia, and agoraphobia. Specific phobia refers to fears of specific objects or situations belonging to one of five categories. The first category is animal and common examples of phobias are spiders, snakes, or dogs. The second category is natural environment and incorporates phenomena such as storms, heights, and water. The third category is blood–injection–injury (BII) and includes fears of needles and invasive medical procedures. The fourth category is situational and examples include being on airplanes, in elevators, or in enclosed spaces. The fifth and final category is simply labeled "other," and includes fears of vomiting or choking, contracting an illness, and costumed characters such as clowns.

Specific phobia is one of the most common anxiety disorders and it frequently develops in childhood due to a traumatic experience involving the object or situation. This trauma may be direct, or related to the child by a friend or media coverage. Some variation is found

among the subtypes, as situational phobias often develop in late adolescence or early adulthood. Generally, females report twice as many specific phobias than males, however, the ratios among the subtypes may vary. Females and males report an equal ratio with regard to BII phobias, but females report much higher numbers for the animal, natural environment, and situational subtypes. Having one specific phobia increases a person's likelihood for having a second of the same subtype. Persons frequently suffer from two or three phobias at a time.

Social phobia, also known as social anxiety disorder, is a fear of social situations and has two subtypes. Generalized social phobia refers to a fear that extends to most social situations whereas non-generalized social phobia refers to a fear of specific situations such as performing or public speaking. Social phobia is distinct from specific phobia in that the distress that arises is not due to fear of perceived danger, but rather a fear of scrutiny by others. Persons suffering from social phobia fear their own actions or anxiety in social situations will draw attention and negative evaluations (e.g. "they will think I'm boring, stupid, or unlikeable"). Common anxious behaviors in social situations include trembling, blushing, sweating, difficulty speaking, and staring. Because social phobia is often comorbid with other anxiety disorders, depressive disorder, or substance use disorders, an individual's anxious symptoms must be found to be independent of other medical conditions to warrant a diagnosis of social phobia.

Social phobia develops slowly over time, beginning in a childhood marked by shyness or social inhibition. The phobia reaches its peak in adolescence and its effects are often lifelong if not treated. The phobia may diminish over time only to resurface during a later life change (e.g. divorce or a new job). Females report experiencing social phobia up to twice as much as males.

Agoraphobia is a distinct form of phobia prevalent in individuals who suffer from recurrent and unexpected panic attacks, and/or panic disorder. Agoraphobic persons fear going out into public places where they will be unable to escape or receive help in the event of a panic attack. Unlike situational phobia, the fear is not due to the danger of the situation itself, but rather the potential social consequences of having an unexpected attack in public. No specific stimuli trigger the panic attacks, and even when the agoraphobic individual is removed from the public space, they experience heightened anxiety in the anticipation of the next attack. To receive a diagnosis of agoraphobia, individuals must fear entering into two or more of the following public situations: using public transportation, being in open spaces, being in enclosed spaces, being in a crowd, or being outside the home alone. Agoraphobia typically develops in late adolescence or early adulthood, and it afflicts females twice as much as males.

Adult persons suffering from any phobia recognize that their fear is disproportionate to the actual danger present; however, children have more difficulty in determining the feared object or situation is not actually a threat. Their fears are often more transient, changing frequently and making it more difficult to provide a definite diagnosis for those under 18 years old. To receive a diagnosis of phobia, children must exhibit the fear for at least six months. Additionally, children suffering from social phobia must exhibit the fear not only among adults, but also peers their own age. Children with social phobia are able to maintain normal relationships with familiar people, but become anxious at the thought of other social situations.

Related Psychological Disorders

Several other mental disorders share similarities with phobia and should be considered when attempting to make a diagnosis. Post-traumatic stress disorder (PTSD) bears several similarities to phobia, especially as they both often develop after a traumatic event and involve fears of triggering stimuli. There are more criteria to be met for a diagnosis of PTSD, however, and if an individual's symptoms fall short, specific phobia should then be considered.

Other distinct disorders include separation anxiety (fearing a particular situation due to the possibility of being separated from a primary caregiver), obsessive–compulsive disorder (fearing an object or situation because of obsessive thoughts), hypochondria (obsessing about bodily symptoms or contracting serious illnesses as opposed to the stimuli that may lead to the illness), and eating disorders (fear that is limited to consuming certain foods). Several psychotic disorders such as schizophrenia can also cause individuals to suffer anxiety and fear, though the source of these fears is within their own delusions and not outside triggers.

Social phobia and depression both involve an avoidance of social situations, but for different reasons. In depression, the avoidance is due to a lack of interest in socializing whereas persons suffering from social phobia actively avoid social situations, fearing the evaluations of others.

Cultural differences are important to take into consideration when diagnosing social phobia. Different forms of verbal and nonverbal communication may reflect shyness in one country and respect in another (e.g. personal space or eye contact). Social anxiety disorder also shares some similarities to a Japanese phenomenon known as "taijin kyofusho" which is characterized by a fear of offending others with your actions as opposed to a fear of being personally evaluated.

Assessment and Treatment

Phobias are most accurately diagnosed through a multi-modal method. Oftentimes, patients fill out self-report measures assessing their fears before they meet with a clinician one on one. The clinician conducts a structured or semi-structured interview accompanied by a behavioral assessment. In the behavioral assessment, the patient is exposed to their fear and the clinician determines its nature and severity. The clinician makes note of the intensity of fear experienced by the patient, specific cues that change the intensity (e.g. color, size, movement, etc.), physical sensations experienced (e.g. palpitations, dizziness, etc.), cognitive anxieties (e.g. "it will bite me"; "people will think I'm stupid"), and behaviors aimed to escape, avoid, or distract from the object or situation. Behavioral assessment is an important part of a clinician's assessment since self-report measures are not always entirely accurate. Patients often have difficulty recalling cues that affect the intensity of their fear and they also frequently overestimate the fear they experience.

Once an assessment is completed, the clinician will reach a diagnosis and rule out any alternative diagnoses. Furthermore, baseline data collected will inform clinicians as to the severity and frequency of symptoms and associated problems. From this, specific problems will be targeted for treatment. If a patient has already received some form of treatment, the

assessment will also determine how effective said treatment was and if the patient has experienced any relapse.

Individualized treatment strategies are planned for each patient. Treatment of specific phobia has been shown to be very effective and cause lasting improvement with as little as one session. Social phobia and agoraphobia are likewise responsive to treatment, though may require more sessions to see significant effects. Cognitive behavioral interventions are the most effective therapy strategies for all three types of phobia and exposure therapy is considered the first-line treatment. Exposure therapy involves exposing the patient to their fear in increments, starting with an easy task (e.g. looking at a picture of their feared animal) and gradually exposing them to more and more challenging tasks (e.g. being in the same room with the animal; touching the animal). The patient works their way up this fear and avoidance hierarchy, becoming comfortable at each new level before conquering the next level of exposure. When exposure scenarios are difficult to arrange, clinicians often set up a virtual reality whereby the feared situation is simulated in a three-dimensional space using various sensory technologies and props to stand in for the real objects.

To supplement exposure-based therapies, there are several other treatments shown to help persons with phobias. One such treatment is muscle relaxation techniques. These techniques are often taught in an attempt to calm physiological arousal in the presence of anxiety-provoking stimuli. In contrast, muscle tension techniques are taught to individuals suffering from the BII phobia, where the sight of blood or injections often leads to fainting. Patients are instructed to tense their muscles when encountering their feared stimuli. This elevates their blood pressure which in turn prevents them from losing consciousness. Finally, cognitive restructuring is a treatment whereby patients learn to challenge instinctual beliefs and predictions about their fears and examine evidence for any truth therein.

In addition to the above strategies, treatment for social phobia includes social skills training. Patients are given instruction on improving conversation and social skills, including maintaining eye contact, initiating conversation, and reading non-verbal communication. These new skills are employed in role-play exercises and gradual initiations into social interactions.

Pharmacological treatments have also been found to be effective for social phobia and agoraphobia, most notably selective serotonin reuptake inhibitors (SSRIs). Pharmacotherapy and CBT have been found to be equivalent in their effectiveness, however, the former is usually only prescribed to individuals not interested in the latter.

See also

Anxiety
Anxiety, Assessment of
DSM-V
Post-Traumatic Stress Disorders

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Positive Self-capital

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Positive self-capital refers to the set of the positive features of individual functioning, which is able to support individuals' health and well-being as well as to uncover their potentialities and abilities, enhancing successful performances and personal development.

The interest in these positive characteristics has flourished over recent decades in line with the emergence of a new stream of theoretical and empirical research, known as positive psychology, led by the psychologist Martin Seligman. The attention shifted to the forgotten missions of helping healthy people to actualize their human potential, and the focus was on individuals' strengths, happiness, well-being, growth and self-achievement as opposed to the negative perspective centered on weakness, mental illness, and dysfunctional behaviors (Seligman, 2002). The positive psychology movement rapidly expanded in the organizational domain, due to its emphasis on individual core competencies associated with elevated performance and on individual talents, essential for the long-term competitive advantage of contemporaneous organizations. More specifically, two parallel approaches developed, commonly referred to as positive organizational scholarship (POS; Cameron, Dutton, & Quinn, 2003) and positive organizational behavior (POB; Luthans, 2003). The focus's width is what differentiates the two perspectives: POS relies on the macro, organizational level, while POB aims at the micro, individual level. Moreover, POB set a series of criteria to define the psychological strengths or capacities of positive self-capital. The criteria state that psychological strengths/capacities have to be positive, relatively unique to the field of organizational behavior, theory- and research-based, measurable, state-like (i.e. developable), and associated with performance outcomes.

Within this approach, Luthans and colleagues (Luthans, Youssef, & Avolio, 2007) proposed the concept of *psychological capital* (PsyCap), which refers to a high-order construct, synergistically integrating some assets of positive self-capital. PsyCap designs "an individual's positive psychological state of development" (Luthans et al., 2007, p. 3), characterized by a set of individual positive features which favor person-organization fit, higher performance, and personal and professional growth stemming from experience, difficulties, and errors.

The construct goes beyond the concepts of human capital (i.e. "what you know") and social capital (i.e. "who you know"). It depicts the psychological self, which includes not only "who you are" but also "who you can become," acknowledging the possibility of development from the actual to the potential self and recognizing the state-like nature of PsyCap, relatively malleable and open to change (Luthans et al., 2007). Four sub-dimensions make up the PsyCap higher-order factor: self-efficacy, optimism, resiliency and hope.

Drawing upon Bandura's extensive work within the social-cognitive theory, self-efficacy refers to the person's confidence in his/her abilities to activate the resources and course of action needed to effectively complete a specific task in a certain context (Bandura, 1997). Self-efficacious individuals set more difficult goals for themselves, are highly self-motivated, perceive obstacles as challenges, increase effort and perseverance to pursue their objectives. As a result, individual growth, job performance, and a series of desirable attitudinal outcomes (e.g., job satisfaction, organizational commitment) are sustained (Bandura, 1997; Stajkovic & Luthans, 1998). More importantly, self-efficacy beliefs may be developed through specific strategies, namely mastery experiences of success, social modeling and vicarious learning, social persuasion and positive feedback, modification of psychological and physiological states (Bandura, 1997).

Based on Seligman's (1998) definition, optimism describes a positive explanatory style that attributes positive events to internal, permanent, and pervasive causes while viewing negative occurrences as external, temporary, and situation-specific. Optimistic individuals take credit for their success and distance themselves from unfavorable situations, internalizing the positive elements of their existence. Consequently, a protection from depression, self-blame and guilt is provided, sustaining positive outcomes such as increased performance in various life domains, including the workplace (Luthans et al., 2007; Seligman, 1998). Aware of the risks that can derive from an unrealistic prediction of events, the PsyCap perspective stresses flexibility and realism as prominent properties of optimism. An optimistic style originates from the individual's appraisal of the situation and his/her self-efficacy beliefs, requiring self-reflection and preventive planning to avoid negative consequences. Also, optimism is susceptible to development through a personal growth process, which aims at activating an optimistic explanatory style by encouraging leniency for the past, appreciation of the present, and flagging positive opportunities for the future (Schneider, 2001).

Founded on Masten's developmental and clinical work (Masten, 1994), resiliency refers to "a developable capacity to rebound or bounce back from adversity, conflict, and failure or even positive events, progress, and increased responsibility" (Luthans et al., 2007, p. 18). The reference to positive events emphasizes that resiliency is a reaction to all those situations perceived by the individual as overwhelming changes. Resiliency works through a dual mechanism, which enables people to preserve and enhance their assets and to simultaneously reduce the risk factors within the individual and his/her environment. This allows them not only to promptly respond to challenges, bounce back, and re-establish the original equilibrium, but also to attain even higher performance levels. As for the other PsyCap dimensions, multiple developmental strategies may be used to boost resiliency in the workplace. Strategies can focus on assets (i.e. by enhancing the actual and perceived level of available resources), on risks (i.e. via risk management techniques that transform the perception of risks in developmental opportunities), and on the entire process, to promote self-awareness (e.g. assets assessment) and self-regulation (e.g., using assets to overcome risks).

Following Snyder's definition (2000), hope designates a positive motivational state based on the interaction of two elements, agency and pathways. Agency (or "willpower") represents a cognitive state, responsible for setting realistic and challenging goals and activating self-guided determination, energy, and control to achieve the goals. Pathways (or "waypower") refer to the individual's capability to generate alternative action paths to accomplish the set objectives, if the original plans are not functional. Hence, hope allows for the creation of a higher number of action strategies, which can lead to successful job performance, greater job satisfaction, and positive leadership (see Luthans et al., 2007). Practical methods, such as goal setting, contingency planning, and re-goaling, have been identified to develop hope in the workplace.

The described PsyCap characteristics could be viewed as an integrated and synergistic set of *personal resources* (Luthans et al., 2007). Originating in the stress literature (Hobfoll, 2002), personal resources depict the personal characteristics activated by the individual in problematic situations or when further psychological resources are needed to achieve a certain objective. Recently, they have been included within the job demands-resources (JDR) model (Bakker, Demerouti, & Sanz-Vergel, 2014) and conceptualized as those individual characteristics associated with resiliency and control over work context, enhancing goal attainment and professional development. Some examples are optimism, self-efficacy, and self-esteem.

A further relevant construct to define positive self-capital is *core self-evaluation*, a neighbor concept of PsyCap, developed by Judge and colleagues (Judge, Erez, Bono, & Thoresen, 2003). Core self-evaluations are the fundamental evaluations that people make about themselves, their overall value and their capabilities. As PsyCap, they represent a broad, latent, higher-order construct, composed of four well-established sub-dimensions within the personality literature: (1) self-esteem, the general evaluation of one's self-value; (2) generalized self-efficacy, overall beliefs of personal efficacy to perform across a variety of situations; (3) neuroticism, the tendency to frequently experience negative emotions (e.g. anxiety, stress, depression) and to focus on the negative aspects of the self; and (4) locus of control, the beliefs about the causes of life events that can be attributed to internal or external factors. High core self-evaluations enhance a positive view of the self across a variety of situations, positively impacting well-being, job satisfaction, and performance. Indeed, individuals see themselves as worthy of respect and regard (high self-esteem), able to achieve their goals (high self-efficacy), in control of the events (internal locus of control), and they are more optimistic and less self-doubting (low neuroticism). The principal difference between core self-evaluations and PsyCap pertains to the trait-like and more general nature of the former. In fact, core self-evaluations describe a set of stable individual characteristics, related to the broader domain of the individual functioning (and not only to the workplace), reflecting the individual's basic appraisal of his/her worthiness, effectiveness, and capability as a person.

The trait-like nature is the same element distinguishing PsyCap from another high-order construct, ascribable to positive self-capital, that is *positivity*. Positivity defines a positive orientation toward life, "a pervasive mode of facing reality, reflecting upon experience, framing events, and processing personal and interpersonal experiences throughout time and across life circumstances" (Caprara & Alessandri, 2014, p. 202). Positivity is a parsimonious and comprehensive concept, a latent dimension, which comprises the triad of life satisfaction, self-esteem, and optimism. Life satisfaction refers to the level of meaningfulness and

gratification the individual acquires from the multiple activities and relationships in the diverse domains of his/her life. Contrary to the PsyCap dimension, optimism is conceptualized as dispositional and describes the propensity to view and expect future events as more positive than negative. Longitudinal research (Alessandri, Caprara, & Tisak, 2012), along with genetic studies (Caprara et al., 2009), has demonstrated that positivity is a basic stable predisposition that accounts for individuals' adjustment and achievement in different life domains, including organizational settings.

With regard to future directions, research may better investigate whether and how positive self-capital can decline over time and which contextual and personal conditions may decrease such loss. This might be particularly worthy for the state-like dimensions of PsyCap, which fluctuate over time, or for personal resources that, according to the conservation of resources theory (Hobfoll, 2002), are defined as vulnerable and subject to depletion.

Moreover, although some evidence upholds the cross-cultural validity of the aforementioned constructs, further studies could better explore to what extent the various subdimensions are influenced by culture and life experience. Furthermore, research may aim at identifying additional positive psychological characteristics to describe positive self-capital. For example, Luthans et al. (2007) listed a series of supplementary potential constituencies of PsyCap, such as creativity, wisdom, flow, humor, and authenticity. Finally, a challenge for researchers, practitioners, and health psychologists would be to design and test interventions and practices able to strengthen the characteristics underlying positive self-capital as powerful determinants of individuals' enrichment and flourishing.

See Also

Albert Bandura
Core Self-evaluation
Hope
Life Satisfaction
Locus of Control
Martin Seligman
Neuroticism
Self-Efficacy
Self-Esteem, Expressions of

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Psychopathy

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Conceptualization of Psychopathy

As early as the twentieth century, psychopathy was studied by researchers and clinicians among forensic populations as a clinical syndrome. Prior to the twentieth century, there existed no agreed upon operational definition of the construct, which made any diagnosis of psychopathic tendencies difficult. However, psychopathy has emerged as a methodically and explicitly distinct construct that is defined by a constellation of interpersonal, affective, and behavioral characteristics. In general, psychopathic individuals display an interpersonal style characterized by grandiosity, dominance, arrogance, egocentricity, manipulation, and deceitfulness; a behavioral style characterized by impulsivity, irresponsibility, poor behavioral controls, and a proneness to violate social and legal norms and expectations; and an affective experience characterized by shallow or deficient affect, diminished capacity for empathy, guilt, or remorse, callousness, and an inability to form strong emotional bonds with others.

Most modern conceptions of psychopathy are derived from the work of psychiatrist Hervey Cleckley whose seminal book, *The Mask of Sanity* (1976), has strongly influenced empirical investigations of psychopathy. Based on a series of clinical case studies, Cleckley identified 16 qualities that exemplify the disorder such as grandiosity, arrogance, callousness, superficiality, and manipulativeness. Robert Hare is credited with the first formal operationalization of Cleckley's concept of psychopathy: the Psychopathy Checklist and the subsequent revised version, the Psychopathy Checklist-Revised (PCL-R). The PCL-R is the most widely validated and accepted diagnostic instrument for assessing psychopathy among numerous clinical and forensic populations. It is composed of 20 items and is traditionally viewed as having a two-factor solution. Factor 1 consists of personality traits such as glibness/superficial charm, a grandiose sense of self-worth, pathological lying, conning/manipulativeness, lack of remorse or guilt, shallow affect, callousness/lack of empathy, and failure to accept responsibility for actions. Factor 2 traits reflect more behavioral characteristics such as a parasitic lifestyle, poor behavioral controls, early behavioral problems, lack of realistic/long term goals, impulsivity,

irresponsibility, juvenile delinquency, revocation of conditional release, and need for stimulation/proneness to boredom.

Psychopathy, sociopathy, and antisocial personality disorder have often been used synonymously to describe the same disorder; however, these terms describe distinct conditions that should be differentiated. Antisocial personality disorder places emphasis on antisocial and criminal behavior, whereas psychopathy and sociopathy are considered dispositional conditions that primarily emphasize affective and interpersonal characteristics.

Although psychopathy is generally treated as a unitary construct, a number of variants have emerged from the growing body of research and theory. The classic distinction has been made between primary and secondary psychopathy. Primary psychopathy is theorized to reflect a heritable, biologically acquired affective and interpersonal deficit. These individuals tend to be confident, dominant, and free from negative emotions. Secondary psychopaths, often referred to as sociopaths, are conceptualized as having acquired, affective disturbances resulting from early socialization forces or arising indirectly as a means of coping with environmental stressors. The manipulative and callous traits present in secondary psychopathy represent a more psychopathological, hostile, and violent variant, and are typically accompanied by emotional dysregulation.

Recently, a triarchic conceptualization of psychopathy has been proposed in terms of three broad, phenotypic constructs: disinhibition, boldness, and meanness. Disinhibition entails proneness toward impulse-control problems, including lack of planfulness, reactive angry emotionality, insistence on immediate gratification, and deficient behavioral restraint. Boldness represents a propensity toward social dominance, thrill-seeking, and low stress-reactivity. Meanness describes a constellation of attributes including deficient empathy, inability to form close attachments with others, exploitativeness, and empowerment through cruelty.

Psychopathy and Personality

Theorists and researchers have more recently contended that if psychopathy exists as a personality trait among clinical populations, it should also present in the general, nonclinical population. Not all individuals who display psychopathic characteristics come into contact with the justice system, but they still may demonstrate the same socially aversive tendencies as the psychopathic criminal. Similar to core personality constructs such as the Big Five traits, levels of subclinical psychopathy exist dimensionally, where one end of the continuum represents individuals exhibiting low levels of psychopathy, and the other end represents individuals with many psychopathic, socially aversive tendencies. Approximately 1% of the general population exhibits psychopathic tendencies, whereas 15–25% of offender populations possess these characteristics. Currently, the predominant method for assessing subclinical psychopathy is the Self-Report Psychopathy scale (SRP-III). The SRP-III was modeled after the PCL-R and reflects its underlying structure. Specifically, the SRP-III consists of four subscales: Interpersonal Manipulation, Callous Affect, Erratic Lifestyle, and Antisocial Behavior.

Subclinical psychopathy is closely related to Machiavellianism and subclinical narcissism. The three unique traits are collectively known as the Dark Triad of personality due to their common correlates. For instance, each trait is linked to low agreeableness. This is in

keeping with the notion that individuals low in agreeableness tend to be selfish, stubborn, outspoken, aggressive, impatient, and intolerant.

Subclinical psychopathy is characterized by low levels of agreeableness, conscientiousness and honesty-humility. In undergraduate student samples, psychopathy has been related to instances of plagiarism and cheating in school, as well as low GPA. Psychopathy has also been related to such variables as a need for competition, low co-operation, low goal setting, and short-term mating tactics.

Psychopathy and Psychopathology

The relations between psychopathy and psychopathology have been well established. There has been considerable research on the diagnostic co-occurrence of psychopathy with antisocial personality disorder (APD). Findings generally suggest that most cases of psychopathy diagnosed within forensic settings will meet the diagnostic criteria for APD, but only half or fewer of the cases of APD will meet criteria for psychopathy. In addition, criterion sets for APD from the *Diagnostic and Statistical Manual of Mental Disorders* (DSM) and psychopathy from the PCL-R are relatively similar, albeit alternative, efforts at identifying the same personality disorder. However, the DSM criteria for APD place more emphasis on delinquent, criminal, and irresponsible behaviors than the PCL-R criterion set for psychopathy.

Psychopathy is often reported to be comorbid with narcissistic personality disorder (NPD). Some features of NPD are explicitly suggestive of psychopathy, notably a grandiose sense of self-importance and arrogance, lack of empathy, and being unwilling to recognize or identify with the feelings and needs of others, and interpersonal exploitation.

The relationship of psychopathy with anxiety disorders has been controversial. Cleckley included within his original criteria for psychopathy an absence of anxiety. In contrast, the DSM states that APD is associated with anxiety disorders, which may be attributable in part to the limitation of many of the APD studies being conducted with clinical populations. However, increased prevalence rates of panic disorder, agoraphobia, and social phobia have been reported among individuals diagnosed with APD.

Psychopathic individuals are also involved in various forms of high-risk behaviors. Psychopathy has been consistently related to elevated rates of substance use, gambling, and other disorders of impulse control. APD has been shown to provide a significant risk for drug and alcohol use. It has been suggested that APD, psychopathy, and substance-related disorders may share a common underlying psychopathology of disinhibitory temperament. Many twin studies have suggested a common genetic contribution to APD and substance use disorders.

Furthermore, research based on the two factors that emerge from the PCL-R has shown unique relationships with psychopathology. Individuals scoring high on Factor 1 (i.e. narcissism and callous-unemotional traits) tend to present as more psychologically adjusted than those who score high on Factor 2 (i.e. impulsive/antisocial characteristics). High Factor 1 scores are related to decreased stress and anxiety, lack of reported psychiatric symptoms, and greater ability to cope. In contrast, high scores on Factor 2 are related to increased stress and anxiety, neuroticism, and difficulty coping with everyday stressors. Furthermore, individuals scoring high on Factor 1 also demonstrate lower levels of substance abuse, fewer symptoms of PTSD, and decreased risk for suicide than individuals who score high on Factor 2.

Etiology of Psychopathy

A number of physiological, genetic, and developmental theories have been proposed to explain the etiology of psychopathy. There is not a single, overarching theory that explains why psychopathy develops in some individuals and not others, but it is generally accepted that nature and nurture interact to produce behavioral events and characteristics aligned with psychopathy. For instance, it has been demonstrated that approximately 50% of individual differences in psychopathic traits are attributable to genetic factors, but these genetic factors interact with the environment to influence one's personality structure. Although no specific "psychopathy gene" has been identified, it is generally accepted that a number of genes contribute to the disorder.

Cortical regions associated with the presence of psychopathic characteristics include the limbic system, the septo-hippocampal-orbital frontal system, and the amygdala. It has been proposed that psychopathy is associated with circuitry or mechanistic issues within these brain regions. Specifically, cortical excitability is lowered, and information that would, under normal circumstances, produce stress in an individual does not have the same effect on individuals with psychopathy.

One theory that has been proposed regarding the development of psychopathy is the response modulation hypothesis, which describes the cortical dysfunction of psychopathic individuals. According to this hypothesis, psychopaths engage in behaviors that they have previously been rewarded for regardless of possible punishment due to an inability to focus their attention on secondary information. Such secondary information can include possible consequences for their actions, implicit rules of conduct, or learned associations. A second hypothesis, the violence inhibition mechanism (VIM) hypothesis, contends that a deficit in the amygdala causes a failure in conditioned emotional responses, and this, in turn, causes a failure to develop a sense of morality. For instance, in normal individuals, distress of a victim activates the VIM and increases situational empathy. However, the VIM is not activated in psychopathic individuals due to these amygdalar deficits.

A variety of environmental antecedents to psychopathy have also been proposed as risk factors for the development of psychopathic characteristics. Early life risk factors for psychopathy include being physically abused by parents, maternal psychopathy, hyperactivity-impulsivity problems, and parental deviance. These environmental factors are not necessarily causal mechanisms of psychopathy, but rather, they are predictive of the development of the disorder later in life.

Clinical Implications

A large number of studies have shown that the presence of psychopathic features is associated with a propensity for aggression and violent behavior in childhood, adolescence, and adulthood. Furthermore, psychopathy is one of the strongest predictors of future criminal conduct and violent recidivism in both criminal offenders and psychiatric patients.

Research has also established a relation between psychopathy and sexual coercion against women. In terms of prevalence, psychopaths appear to be more likely than non-psychopathic criminals to rape. In addition, psychopaths are overrepresented in samples of sexual offenders

and appear to constitute a coherent subgroup of rapists. Moreover, the impulsive-antisocial deviance component of psychopathy has been found to predict subsequent sexually aggressive behavior in convicted offenders. The components of psychopathy have also been demonstrated to predict sexually coercive behavior against women in non-criminal samples.

Clinical and forensic interest in psychopathy also involves the implications for treatment amenability. Therapeutic pessimism about psychopathy has been so engrained among clinicians and researchers that it is rarely subjected to empirical evaluation. Of those that have been conducted, most have had serious methodological flaws, such as the lack of randomized controlled trials, difficulty with reliably measuring treatment outcomes, and the lack of treatment programs developed specifically for those with psychopathy. Furthermore, psychopathic traits tend to be associated with low treatment motivation and poorer treatment response.

A recent review of the literature reported that treatment results for adult psychopaths range from low-moderate to poor. However, a small body of quasi-experimental evidence challenges the assumption that individuals with psychopathy do not respond to conventional treatment. For example, a meta-analysis of 42 studies indicated that across treatment modalities, psychotherapy was moderately successful in reducing recidivism for psychopathic individuals (on average, a 62% success rate). Furthermore, a study of 871 civil psychiatric patients indicated that individuals with psychopathic tendencies who received intensive treatment during one 10-week period appeared just as likely to benefit from treatment as nonpsychopathic patients, in terms of reduced violence potential. Randomized controlled trials are necessary in order to draw causal conclusions regarding treatment efficacy for psychopathic tendencies.

See also

Antisocial Behavior, Assessment of
Antisocial Personality Disorder
Dimensional Assessment of Personality Pathology (DAPP)

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Religiosity

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Religiosity Conceptualized

If we gave people a survey asking them about the extent of their religiosity, we might assume that most of them would understand the question. We would find variation in the responses with some people reporting that they are not at all religious, some reporting that religion plays a central role in their life, and others reporting no formal connection with a specific religion but that they see themselves as spiritual. At the same time, many people might question exactly what we mean by religiosity. Although religion and spirituality, and the difference between the two, can be difficult to define, researchers who study the psychology of religion generally converge on the view that both terms refer to a search for the sacred or for transcendence. In religion, the search occurs within an organized set of shared beliefs, doctrines, and rituals, whereas in spirituality, the search occurs more on a personal level often with less formal direction. The term "sacred" can refer to the divine, a higher power, God, or to abstract concepts such as truth, good, and beauty. Transcendence literally means "to go beyond the world" or "beyond oneself." A similar phenomenon in psychology is the peak experience proposed by Maslow, consisting of a euphoric or ecstatic state in which a person may experience a greater sense of unity with the universe and a loss of a separate sense of self or time.

Religion as a Unique Phenomenon

Another challenging conceptual issue is whether religion represents a unitary phenomenon not reducible to more fundamental psychological, social, or physical dimensions. Paloutzian and Park (2013) present a critical examination of religion, questioning whether it is a distinct psychological phenomenon. They argue that religion may belong to a larger psychological domain of a need that people have to make meaning. They also question the idea proposed by Pargament (1992) that the distinctiveness of religion lies in the search for the sacred. They argue that sacred objects are arbitrarily defined as such by people and that

the need for transcendence, also proposed by Pargament, may be reducible to more basic psychological needs. In a sense these questions are similar to whether art can be reduced to more basic psychological or even biological processes. Concepts such as art, religion, money, and justice can certainly be studied at more elementary levels of explanation, whether physical, chemical, or genetic. However, at issue is the extent to which the concept that is proposed loses its essence when subjected to reductionism. Regardless of the validity of the sacred, the divine, or transcendence, it seems clear that since the dawn of consciousness, humans have longed for something that they cannot explain. In the words of St. Augustine, in his *Confessions*, "Thou hast made us for thyself, and our heart is restless until it finds its rest in thee."

Religiosity

Saroglou (2014) defines religiousness (or religiosity) as "the individual differences on being interested in and/or involved with religion. This includes individual differences in attitudes, cognitions, emotions, and/or behavior that refer to what people consider as a transcendent entity" (p. 5). He adds that religiousness can be thought of as including four dimensions: believing, bonding, behaving, and belonging. As part of a meta-analysis on religiosity and personality, Saroglou (2010) also categorized the various measures of religiosity used in various studies as: (1) Religiosity involving beliefs and practices in relation to a transcendent being within an established tradition or group; (2) Spirituality or mature faith that includes critical consideration of beliefs independent of religious groups; and (3) Fundamentalism consisting of authoritarian and dogmatic beliefs and practices. An earlier distinction between intrinsic and extrinsic forms of religiosity was proposed by Gordon Allport in the 1950s. The intrinsic dimension involves seeking the sacred and transcendent for its own sake, whereas the extrinsic dimension involves external motives or rewards such as affiliation and becoming a respected member of society. Allport viewed the two dimensions as fairly independent of each other, and he proposed that intrinsic religion was the healthier form. Some aspects of religiosity, however, do not fall clearly within the intrinsic or extrinsic domain. For example, affiliation may be considered extrinsic but also have intrinsic properties when thought of as communion.

Universality and Individual Differences in Religiosity

Personality researchers investigate the underlying psychological structure of humans, the individual differences in psychological dimensions, the factors that account for the variation across individuals, and the outcomes or consequences of this variation. Religion is indeed a universal phenomenon part of the human experience, not unlike other universal phenomena such as music, art, and literature. The landscapes of many cities across the world display majestic architectural testaments to the universal reality of religion and spirituality. At the same time, these landscapes do not show the wide range of individual differences in religiosity, from those at one end of the continuum who define themselves as atheistic or even anti-religious, and those at the other end who live behind the cloistered walls of monasteries, dedicating themselves entirely to their religion. Most people fit within those boundaries.

In fact, researchers use various self-report questionnaires to assess where people fit on a continuum of various religiosity aspects such as general religious or spiritual attitudes, religious coping, attachment to God, doubt, mystical experiences, and the use of prayer.

Distinction Between Religiosity and Personality Traits

Religiosity does not fall within the category of fundamental personality traits, in part because it has a belief component, which is not characteristic of traits (Ashton & Lee, 2014). Instead, religiosity is sometimes referred to as a characteristic adaptation that develops throughout the course of life largely under the influence of socialization within a culture and individual experiences. This is not to say that religiosity cannot be conceptualized as a stable individual difference. In fact, research has shown that religiosity is fairly stable, in terms of rank-order, across the lifespan, meaning that within a group or population, people who were the most religious when they were young are likely to be among the most religious also at a later age. At the same time, people can still go through changes such as experiencing conversions or abandoning their religious practice or beliefs. Also longitudinal research has shown that religiosity tends to decrease during the transition from adolescence to adulthood.

Religiosity also differs from personality traits in terms of personal agency. Although people are somewhat bound by their personality traits, they are also self-determined motivated agents that make choices, set goals and develop long-term projects. Notwithstanding the early constraints of their particular social and cultural milieu, young people experience increased freedom in defining their attitudes, beliefs, and values as they live through adolescence and emerging adulthood.

People also vary in religiosity as a result of their life experiences. High levels of religiosity might be reinforced by early experiences, including positive influences of religious or spiritual role models. Religious people may find it easy to derive positive emotions from religious activities such as participating in choirs, leading discussion groups, or camp events, especially if these activities provide opportunities to discover and improve their talents. People have also benefited from religiosity as a coping mechanism.

Association Between Religiosity and Personality Variables

Ashton and Lee (2014) reviewed the associations between religiosity and personality traits based on a meta-analysis by Saroglou (2010) and additional research using their HEXACO model of personality, a model related to the five-factor model that includes an additional dimension of honesty-humility. They reported that Agreeableness and Conscientiousness correlated modestly with the three types of religiosity measures, and that Honesty-Humility correlated with religious measures typical of the Religiosity category outlined by Saroglou. Openness to Experience was modestly correlated with measures of spirituality and a questioning faith but negatively with fundamentalism. In their review Ashton and Lee considered the possibility that the associations between religiosity and personality variables could result from socially desirable responding but pointed out that research based on observer reports of teachers and parents revealed similar findings.

Biological Bases of Religiosity

Although a number of popular books have proposed a God gene or that the brain is wired for God, research on biological substrates of religiosity need to consider the likelihood that personality traits are mediating mechanisms (Ashton & Lee, 2014). Behavioral genetic research has revealed that religiosity has a heritable component similar to that of personality traits. However, that genetic influence is probably pointing to more fundamental personality traits such as conscientiousness and agreeableness. Heritability is small in adolescence and increases in adulthood to levels similar to the heritability of personality traits. This increase can be explained by the fact that adults have more freedom than adolescents in choosing their environment and practice or absence of religious activities. Although some researchers in evolutionary psychology view religion as a direct product or adaptation of evolution by natural selection, a consensus seems to be emerging that in addition to its cultural evolution, religion can also be seen as a byproduct of other non-religious psychological mechanisms designed by natural selection.

Future Directions

Research Methods

Nomothetic research focuses on basic principles that apply to everyone, whereas idiographic research focuses on unique aspects of individuals. Allport was a firm advocate of the need for idiographic research in the study of personality. The study of individual cases (e.g. saints, presidents, mass-murderers, or ordinary people) seems particularly appropriate for understanding the various forms and motives for religiosity. Other qualitative methods including unstructured interviews and ethnographic studies can uncover religious phenomena that would otherwise remain undetectable. Personality researchers have incorporated narratives as data collection procedures to study how people make meaning of their life through the stories they generate. Meaning making consists of making sense out of ambiguity, the unknown, chaos, losses, or crises in life. In terms of nomothetic research, future studies can incorporate advancements in psychometrics to develop improved measures of various aspects of religiosity (across cultures and religious groups) and intensive longitudinal analytic methods to investigate diary data of how people practice religiosity.

Evolving Ideas and the Role of Personality Research

Theologies and ideas about the sacred and transcendence evolve with the accumulation of knowledge. Some theological ideas (e.g. ground of being, an ultimate reality, or the source of moral order) are more compatible with scientific and philosophical knowledge than those describing God with anthropomorphic metaphors. Ultimate questions about our place in the universe, being itself, how we should live, and the nature of reality are not the sole property of any one discipline. Psychology has a major role to play in furthering our knowledge of consciousness, free will, and self-control. These psychological/philosophical dimensions may have important theoretical connections to religion and

spirituality. In personality psychology, although we have made great strides in mapping the fundamental personality variables and characteristic adaptations, much of our human complexity remains open to further exploration.

See also

Agreeableness
Conscientiousness
Openness
Self-control
Temperament, Personality Correlates of

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Risk Taking

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Risk taking is defined as the engagement in behaviors that are associated with some probability of undesirable results. Prototypical risky behaviors could include criminal behaviors, dangerous driving, drug use, and alcohol consumption. Although sensation seeking has been a consistent correlate of risky behaviors, risk taking is a separate construct from sensation seeking. Instead, those high on sensation seeking are defined by their search for novel sensations, driven by a desire for complexity and intensity. Nonetheless, such experiences often come packaged with risks, whether it be physical, social, legal, or financial. Typically, these risks are less likely to deter sensation seekers who often think the benefits of such sensations outweigh the risks.

Sensation-seeking has been correlated with many of the prototypical risk taking behaviors mentioned previously, such as smoking, drug use, and dangerous driving. Interestingly, not all types of risky behaviors engaged in by sensation seekers are destructive – rather, sensation seekers also tend to be drawn toward prosocial risk taking behavior. For instance, those high in sensation-seeking may be drawn to dangerous but prosocial vocations such as firefighting and policing. In terms of interests, those high in sensation seeking may pursue sports involving higher risk, such as skydiving and downhill skiing.

It must be noted that not all sensation experiences involve risk. Novel and complex music and art, in line with a non-conforming general lifestyle, are also sought by some sensation seekers, describing the Experience Seeking factor of sensation seeking. Other dimensions of sensation seeking include Thrill and Adventure Seeking, characterized by the aforementioned physical activities that provide novel sensations and moderate risk such as skydiving and mountain climbing; disinhibition, which refers to seeking sensation through a hedonistic lifestyle, involving drinking, partying, and sex; and Boredom Susceptibility, representing an aversion and restlessness in response to monotony.

Four Perspectives for Understanding Risk taking/Sensation Seeking

Classic debates in the theory of risk taking and decision making theorized that individuals abide by the universal rule of maximizing utility, where possible gains are maximized through necessary risks, by behaving rationally. However, it has been subsequently found that humans do not act rationally at all times, often relying on instincts and heuristics. The Prospect Theory was proposed in 1979 by Daniel Kahneman and Amos Tversky, which earned the Nobel Prize. The theory is commonly cited in the effort to understand risk taking, where tendencies stray toward risk-averse for potential gains, but risk-seeking to avoid potential losses, even when the outcomes are identical. In other efforts to understand risk taking from a cognition standpoint, cognitive processes of adolescents have been examined. It has been proposed that adolescents tend to be more cognitively egocentric, and therefore think of themselves as more invulnerable to undesirable risk outcomes than adults do.

Decision making and risk taking have also been tackled from an emotional standpoint, with the Somatic Marker Hypothesis (SMH). The SMH proposes that emotional responses to positive and negative consequences influence decision making in risky and uncertain situations. These findings have been informed by studies using the Iowa Gambling Task, where it has been found that adult participants who are cognitively adept, yet emotionally impaired, perform worse and take unnecessary risks in the gambling task than normal adult participants. This points toward some role of affect and emotion in guiding decision making.

In addition to the SMH, affective decision making can also be influenced by impulsivity, which in the context of emotional decision making is the inability to inhibit primary responses while attempting to make more calculated decisions. Impulsivity can also be construed as the inability to delay gratification or to self-regulate, which has been theorized by the Self-Regulation Model (SRM) to contribute to risky behaviors as rational decision-making processes are bypassed.

Neuroscientific methods have also been utilized when examining risk taking, contributing to the finding that the frontal lobes are integral in the cognitive analysis of risk. Indeed, damage to the frontal lobes has been found to result in impairment of tasks involving the calculation of risk. Subsequent work using fMRI technology has found specific patterns of neural region activation that corresponds with the selection and anticipation phases of a risk taking task. Biochemistry has also been examined in the psychobiological perspective of the development of risk taking. It was found that decreased monoamine oxidase (MAO), which regulates neurotransmitters, and increased sex hormones, such as testosterone, were associated with high sensation seekers.

Finally, social development perspectives have also been consulted when investigating the development of risk taking. The majority of research has looked into relationships with parents, as well as peers. First, findings indicate that authoritative (high warmth, high discipline) and authoritarian (low warmth, high discipline) parenting approaches result in lower levels of prototypical risky behaviors, as opposed to indulgent (high warmth, low discipline) and neglectful (low warmth, low discipline) parenting approaches. Eventually, peers become more of an influence on adolescents as opposed to parents. It has been consistently demonstrated that those who associate with peers that engage in risky behavior are themselves more

likely to engage in risky behaviors. However, one potential explanation for this is that children and adolescents select peers who have similar interests and tendencies (i.e. risk taking inclinations) rather than that they are influenced by their peers to heightened risk taking.

Experimental risk taking behaviors in adolescents may seem trivial compared to those in adults. However, in regards to sensation seeking, abuse or dependence on addictive substances, such as alcohol or drugs, in adulthood may result from initial sensation seeking tendencies simply for the purpose of novel experiences. It has been found that high sensation seekers are likely to experiment at a younger age, as well as sample more types of drugs, as opposed to low sensation seekers.

Sensation seeking has been correlated with many different groups of risky behavior. These include risky driving, sports, and vocations, as well as substance use, risky sexual behavior, and criminal acts. Generally, it has been found that high sensation seekers are more likely to engage in these behaviors, although different dimensions of sensation seeking are involved in different risky behaviors. For instance, it was found that high scores in Thrill and Adventure Seeking were not as associated with the use of hard drugs as high scores in Boredom Susceptibility and Experience Seeking, presumably to protect their health for the sake of their involvement in extreme sports.

With its important predictive power, there have been debates as to whether sensation seeking and risk taking constitute an important personality dimension on their own and consequently lie beyond the Five Factor Model (FFM) of personality, or whether they are encompassed by the FFM since they share a substantial amount of variance. Both risk taking and sensation-seeking are positively associated with Openness to Experience and Extraversion (r=0.2–0.6), negatively associated with Conscientiousness and Agreeableness (r=0.1–0.5), and not related to Neuroticism.

Current Research on Risk Taking and Sensation Seeking

With the advent of the more recent HEXACO personality model, the associations of risk taking and sensation seeking with personality dimensions justify another look. The HEXACO model differs from the FFM with the inclusion of the Honesty-Humility dimension, as well as the reorganization of the irritability and fearfulness facets. These facets are included in the Neuroticism dimension of the FFM, but belong respectively to the Agreeableness and Emotionality dimensions of the HEXACO model respectively. Once again, the HEXACO model encompasses a significant portion of risk taking and sensation seeking, being positively related to Openness to Experience and Extraversion (r = 0.40–0.45) and negatively related to Honesty-Humility, Emotionality, and Conscientiousness (r = 0.22–0.35). Honesty-Humility provides an important addition to the explanation of risk taking and sensation seeking, especially since individuals lower in levels of Greed Avoidance and Fairness, two of the facets of Honesty-Humility, demonstrate greater risk taking.

While preliminary evidence suggests that adolescents are cognitively egocentric and think of themselves as invulnerable, current research finds few differences between adolescents and adults in the evaluations of inherent risks and seriousness of consequences in a wide range of dangerous behaviors. Instead, it has been theorized that risk taking is a product of both logical reasoning and psychosocial factors. Whereas logical reasoning seems

completely developed by the age of 15, psychosocial factors, which account for more instinctual factors like impulse control, delay gratification, and emotion regulation, continue to develop well into adulthood. As such, developing psychosocial factors may compromise otherwise competent decision making. This has been supported by neuroscientific methods with the socioemotional network, which is sensitive to social and emotional stimuli. This network shows greater activation during risk taking with adolescents, especially in the presence of peers, than the cognitive-control network, which is associated with executive functions, such as planning, and self-regulation. Over time, it seems that the cognitive-control network matures even more with the development of cross-talk across brain regions, finessing response inhibition, quelling the socioemotional network.

The above-mentioned theory belongs to the category of dual-process theories, where it is theorized that people are capable of controlled, analytic processes, but also rely on more instinctive, heuristic processes. It is thought that the latter processes are responsible for risk taking. Also belonging to this group of theories is the fuzzy trace theory, which describes two processes for reasoning about risk and reward. There is the process of verbatim thinking, which is a more precise form of risk-based analysis, and the fuzzier process that is more gist based. Fuzzy trace theory proposes that during development, adolescents shift from verbatim to gist-based methods.

Future Directions

The examination of risk taking has taken four different perspectives: cognitive, emotional, psychobiological, and social. However, it would be beneficial to the field to integrate the findings and ideas from each of these views. Initial attempts have already been made, such as the Problem Behavior Theory (PBT) and the Biopsychosocial Model. However, whereas PBT depends mostly on sociodevelopmental assumptions and de-emphasizes cognitive and affective development perspectives, the Biopsychosocial Model has difficulty explaining the developmental trajectory of risk taking, and primarily addresses individuals with extreme and chronic behavioral problems. Other than these models, there have been few efforts in cross-perspective efforts. Fortunately, the findings described earlier combining neuroscience with cognitive development theories is a step in the right direction. Findings of this manner should only increase with the development of new technologies, and should shed light on the development of risk taking, as well as preventative measures.

Reducing unhealthy expressions of sensation seeking and risky behavior has been attempted over many years. However, this has proven to be a difficult task as potential interventions such as information, reasoning, and negative advertisements have not been as effective as hoped in dissuading high sensation seekers from pursuing risky behavior. The research concerning dual-process theories and the neuroscientific support suggests there may be very large challenges in attenuating or delaying the shift in reward sensitivity that takes place at puberty psychologically, and instead society should become more vigilant in terms of enforcing laws concerning alcohol and drugs, as well as raising the price of cigarettes and the driving age.

See also

Impulsivity
Self-control
Sensation Seeking

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Self-concept, Expressions of the

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A Definition and Elaboration

Self-concept describes the mental snapshot that individuals have of themselves (i.e. the sum of their self-perceptions, identities, role relationships, etc.). The organization of the building blocks of self-concept in memory is referred to as *self-concept structure*, whereas the actual information which gets integrated to create self-concept is referred to as *self-concept content*. In order to construct their self-concepts, people are required to appreciate the "I-Me distinction" that the individual "I" actively constructs the "Me" which is considered as an object of social construction. The socially constructed "Me" is highly context-sensitive in that it is shaped by important others, life experiences, and self-reflection. Individuals can have self-concepts that are based in reality, grounded on societal expectations, or built on romanticized notions, and these refer to one's actual self, ought self, and ideal self respectively. Mismatches between actual and ought self-concepts can be a precursor to anxiety, whereas disconnects between the actual and ideal self-concepts can contribute to depression.

Self-concepts vary between individuals given that each person possesses a self-concept with a number of self-aspects (e.g. best friend, daughter, student, etc.) and associated attributes (e.g. respectful). The attributes of each self-aspect may either overlap or be unique. Those who have more self-aspects and less attribute overlap between self-aspects are referred to as having greater *self-concept complexity*. Lower self-concept complexity can be disadvantageous because if one experiences an unpleasant event related to a specific self-aspect (e.g. girlfriend), mental regulation becomes more challenging due to overlap of attributes between self-aspects causing a spillover effect into other self-aspects. This said, higher self-concept complexity is not necessarily better given that in some circumstances this has been linked with poorer well-being due to a difficulty in managing multiple self-aspects. However, self-concept complexity can be meaningful if individuals perceive control over self-aspects because it contributes to a richer view of the self.

Self-Concept Modeling and a Cameo of Academic Self-Concept

A better understanding of how the self-concept is modeled can be gained by tracing back to the early roots of such research. Shavelson, Hubner, and Stanton (1976) have outlined various types of self-concept, and their model of self-concept has exerted tremendous influence on current thought. According to the Shavelson et al. model, self-concept is organized in a hierarchical manner in a pyramidal structure where one's general self-concept is composed of academic and non-academic self-concept. Each type of self-concept is further deconstructed such that academic self-concept focuses in on specific subjects, whereas non-academic self-concept is split into social, emotional, and physical forms. The final layer of the self-concept pyramid has situation specific behavioral manifestations of various components of self-concept. Some other early models of self-concept view general self-concept as interchangeable with global self-esteem or consider self-concept to be similar to self-efficacy in that self-concept involves beliefs about one's level of competence within certain domains which stem from past experiences.

Although there are several types of self-concept, academic self-concept has been extensively studied and much of the current understanding derives from the work of researchers such as Herbert Marsh. Academic self-concept refers to a global perception of oneself within the educational and achievement based domains. Academic self-concept also incorporates two distinct constructs, namely mathematical and verbal self-concept. In an extensive review of academic self-concept, Marsh (1993) has outlined that a model of self-concept which has distinct factors for math, verbal, and non-academic self-concept – the Marsh-Shavelson model – outperforms a general single factor model of self-concept or a model with several second-order academic and non-academic factors. Additionally, the spectrum of subjects subsumed by academic self-concept is not adequately covered by math and verbal factors alone, but rather other factors emerge when assessing subjects such as music. In support of the validity of academic self-concept, evidence shows that domain-specific achievement is linked with specific types of academic self-concept, e.g. strong performance in math links with math self-concept.

Gender Differences and Age Developments in Self-Concept

The self-concept is a dynamic construct which changes both in structure and content depending on what developmental stage one is at. Furthermore, gender plays a vital role in determining what elements get integrated into self-concept at which stage. In the early years of childhood, both boys and girls engage in social comparative processes with the parent who shares their gender (i.e. girls mimic their mothers and boys their fathers). This comparative process results in gender-specific attributes getting integrated into self-concept. Not only do children form their own self-concepts by social comparison, but important others (i.e. parents) actively shape the self-concept of children in ways which are unique for boys as opposed to girls. When girls are told details of their life-stories, mothers use more details when explaining events and there is a greater emphasis on talk about roles

and relationships as well as emotions. In turn, more focus is given to emotions, relationships, how one feels inside, and connectivity when girls as opposed to boys describe their own self-concept. While boys have less detail-rich narratives, their narratives are specialized in that boys zone in on activities where skill-building occurs in their descriptions of self-concept. Young children also have self-concepts where future selves are seen as participating in gender-specific occupations.

While gender exerts influence on self-concept change over time, there are also gender-invariant changes which occur in self-concept during different developmental age periods. As individuals age, their self-concept structures become more complex and integrate more content because individuals come to know more about themselves. The earliest developmental stage (early to late childhood from ages 2 to 10) represents the formative years of self-concept formation. Very young children develop an understanding of themselves as separate entities and differentiate themselves from the social world. At this point, children in the lower end of this age range do not rely on comparison with others to form their self-concept, nor do they consider the viewpoints of others as material for self-concept formation. Additionally, the self-concept of a very young child is biased toward being overly positive and presents the self in a very favorable light. However, children are only able to recall very specific information such as personal preferences or tangible content at this stage, and the recall is in a piecemeal fashion. As children reach the end of childhood and prior to their transition into adolescence, they differ greatly from when they were younger. As opposed to the narcissistic tendencies displayed by younger children, both positivity and negativity are incorporated into the self-view of older children. At this juncture, children compare themselves with others and the opinions of others matter for self-concept formation. The self-concept also is better organized than when children were younger and more information becomes available for integration (e.g. personality attributes, self-other evaluations, and self-esteem relevant content).

Adolescence represents the next developmental stage which spans from when an individual is 11 until 17 years of age. At the lower end of this age range, adolescents shape their self-concept by selectively integrating or excluding the opinions of others depending on which context they are in. Furthermore, the self-concept is structured to allow for lower-order attributes to be grouped into superordinate categories. To illustrate, the superordinate category of ambitious could include attributes such as hardworking and motivated. Older adolescents vary from their younger counterparts in that their self-concepts are richer and more structured. To expand, older adolescents have self-concepts where specific qualities are tied to specific roles (e.g. loyal friend). Older adolescents also give much room in their self-concept to thoughts of their future selves and beliefs about what is personally meaningful. Lastly, individuals at this age start looking to themselves and focus more on trying to become more compatible with their ideal selves as opposed to relying only on others' viewpoints for self-concept formation. Emerging adulthood (i.e. the stage when individuals are between 18 and 25 years of age) represents a developmental stage between childhood and adulthood. Emerging young adults navigate the social world and deal with challenges afforded by multiple occupational paths, romantic relationships, actual and ideal self-concept discrepancies, reconfiguration of their relationships with parents to enable autonomy while preserving social support, etc.

Cultural Differences in Self-Concept

With regard to culture, the lens through which people perceive their world, i.e. self-oriented and achievement driven (i.e. individualistic) vs. other-oriented and harmony driven (i.e. collectivistic), has implications on how the self-concept processes information. Those who are individualistic have a proclivity to view contextual information as self-discrepant, whereas those who are collectivistic are inclined to perceive the social context as self-relevant. In terms of self-relevant emotions, individuals from Western individualistic contexts more often display the self-enhancing emotion of pride, whereas those from Eastern collectivistic contexts more often display the self-effacing emotion of shame. Similarly, the Western self-concept is one where there are strivings to maintain self-esteem, whereas this is not as prevalent in Eastern self-concept. In terms of how the self is represented across cultures, adolescents from Western cultures report multiple self-aspects which display both true self-attributes as well as false attributes which exist outside of one's true self. In contrast, Eastern cultures are tolerant of contradiction and consider that all of an individual's self-aspects are embedded within one's true self and that different self-attributes are not sources of conflict. Another cultural difference is that the developmental stage of emerging adulthood is reached faster in non-Western contexts and clearly demarcated through special rites of passage.

Tapping into Self-Concept: Measurement Methods and Associated Challenges

The self-concept demonstrates malleability over the lifespan and across domains. Not only are there several self-concept measures, but also there are challenges in the accurate assessment of self-concept given the complexity of the self. Self-report measures are commonly used, however the type of information elicited is influenced by the measurement context (e.g. qualities of the experimenter or the research environment, as well as accessibility of self-relevant information). In order to study changes in self-concept over time, both longitudinal and cross-sectional survey techniques are used. A few examples of self-concept measures are the Sears Self-Concept Inventory and the Piers-Harris the Way I Feel about Myself Scale. The Self-Description Questionnaires are a set of scales which look at both academic and non-academic self-concept across childhood to young adulthood. In contrast, the Academic Self-Description Questionnaire focuses solely on academic self-concept. A more hands-on approach to the study of self-concept is through ethnography and studies in the field which allow direct observation of the self in different environmental contexts. Such a research approach could prove beneficial considering that self-concept may not be generalizable across cultures, and ethnographic analysis could allow for a finer level of analysis which takes cultural differences into account. Scientific experiments represent a third means of studying self-concept. Many researchers have begun using implicit association procedures in experiments to study self-concept discreetly. Assessing the validity of self-concept measures has been a key aim of researchers. Both theory-based and methodologically driven approaches can be employed in validational testing. Some of the

approaches employed are as follows: factor analyses, multi-trait multi-method studies, experimental manipulations, employing logic to derive alternative explanations, and using specific data procedures (e.g. causal modeling).

See Also

Independent/Interdependent Self
Self-efficacy
Self-esteem, Expressions of
Self-esteem, Theory of
Self-regulation

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Self-control

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Self-Control Conceptualized

Self-control refers to the voluntary regulation of impulses and temptations that interfere with longer-term goals. At a philosophical level, self-control can be thought of as the price we pay to live in a civilized world. Roy Baumeister, an influential researcher in the field, proposed that self-control is the closest thing we have to the idea of free will. Without some kind of mechanism to resist natural or primal impulses and to imagine and plan our future, we would be unable to co-operate in groups and develop a culture. Freud recognized that we have a mechanism in place, the ego, to control the impulses of the system of primal urges that he referred to as the id. Although Freud developed his own terminology and metaphors, it is clear that he was thinking about self-control.

The problem of self-control and what to do about it was captured best in Homer's great epic poem, the *Odyssey*. Circe, a goddess of magic, describes to Odysseus the obstacles that he will face on his voyage home and how to circumvent them. As they approach the island of the lovely Sirens, Odysseus plugs his men's ears with beeswax and has them bind him to the ship. He alone hears the Sirens' song flowing forth from the island, promising to reveal the future. The song is indeed enchanting, and Odysseus begs to be released from his fetters, but his faithful men only bind him tighter. Themes of self-control also permeate many sacred texts, illustrating failures and victories of self-control in the face of unforgiving temptations. These texts provide useful lessons about prevention and intervention strategies including the benefit of anticipating temptations early and developing a plan of resistance.

Research on Self-Control

Classic Studies on Delay of Gratification

Research on self-control is extensive, overlapping with research on similar constructs such as self-regulation and effortful control. A content analysis of this work reveals two interconnected processes at play. The first process involves application of necessary effort to achieve a delayed or long-term goal, whereas the second process involves inhibition and redirection of attention from competing impulses to achieve the main goal. Reflecting on Walter Mischel's classic research at Stanford University in the late 1960s on self-control in children, we can imagine a 4-year-old child struggling to resist the temptation to take one marshmallow now in order to receive two marshmallows in the near future (i.e. 15 minutes). In those studies, some children gave in to temptation right away, others struggled for a while but also gave in, and about 30% of children persisted and waited for the two marshmallows. Mischel and his colleagues showed that effective use of distraction and imagery strategies enabled children to obtain more marshmallows by delaying gratification. Children used various techniques to distract themselves, including imagining the marshmallows as something (e.g. white clouds) other than candy. Indeed, one way to promote and protect distal goals over proximal impulses and temptations is through cognitive reconstrual of temptations in an abstract way. When reconstruals fail, and the temptation is undefeatable, or when self-control fails completely such as in addictions, external help is often required. Mischel's research also provided evidence that early individual differences in delay of gratification predicted better friendships, fewer behavioral problems, and higher Scholastic Aptitude Test scores in adolescence, and academic and occupational achievement in adulthood. Whereas Mischel and colleagues used real choice delay tasks (e.g. one marshmallow now or two later), another common approach is the hypothetical choice delay task (e.g. 10 dollars now, or 50 dollars in one year), which has been used with adults in various research domains such as behavioral economics.

Diary Studies of Self-Control in Daily Life

Like self-awareness, the processes of self-control are activated upon waking up. The first act of self-control may be the decision to get up or remain lying in bed. Everyone is tempted by desires on a daily basis: a bit of extra sleep in the morning, another cup of coffee, taking a day off work, texting on the way to work, sexual impulses, power, and social dominance. Baumeister and colleagues asked a group of adults to keep track of their daily desires and temptations and how successful they were at inhibiting the urges. The participants reported having desires, such as more sleep, sex, and playing games for about half of their waking hours and fighting off temptation to 38% of those desires (Hofmann, Vohs, & Baumeister, 2012). Most people would admit that they fail at self-control in some aspect of their life, and some face devastating consequences. Clearly, self-control can be difficult, and people may fail to behave as they intend.

The Ego Depletion Hypothesis

Roy Baumeister and his colleagues proposed that self-control is akin to a limited resource in an energy model. Like a muscle that is fatigued and fails after much exertion, self-control eventually fails at resisting impulses. The proposition was referred to as the ego depletion

hypothesis (Baumeister, Vohs, & Tice, 2007). In several studies, Baumeister and colleagues investigated participants' self-control after they had previously inhibited a response such as not eating chocolate cake that was placed in front of them and instead consuming unappetizing radishes. The effect of resisting the chocolate cake was to impair performance on unrelated tasks that required perseverance in the face of failure. Other processes, such as making choices, were also found to cost energy and have a debilitating effect on later self-control. Although Baumeister and colleagues first explained ego depletion as the result of glucose depletion in the brain, they later abandoned this notion in favor of a resource allocation explanation. Like a muscle, they argued, the brain is never completely depleted, but rather conserves and reallocates energy where needed. Taken together, two meta-analytic studies performed on hundreds of lab studies suggest that the robustness of the depletion effect varies depending on the measures used to assess self-control. Replication of the few daily diary studies of people's real experiences in self-control will no doubt help refine the ego depletion model.

Executive Functions and Effortful Control

Another area of research focuses primarily on neuropsychological processes underlying self-control. Cognitive tasks have been developed to assess executive functions, or processes that involve neural networks in the prefrontal cortex of the brain, including attention focusing, attention shifting, working memory, and inhibitory and activational control. Executive functions allocate and inhibit resources to various cognitive processes including self-regulation and therefore prevent us, under normal circumstances, from being derailed by the motivational system of self-gratification. The neurotransmitter dopamine is involved in the mesolimbic network of the brain responsible for motivation. Effortful control, a related construct (e.g. Rothbart, Sheese, & Posner, 2007), involves persistence, inhibitory control, focused attention, and delay of gratification, and is assessed in early childhood using laboratory tasks and observer reports. Effortful control processes have been linked to the neurocognitive network of executive attention that draws upon a number of different regions of the brain including the prefrontal cortex and the anterior cingulate cortex (Rothbart et al., 2007). Effortful control predicts a number of behavioral outcomes such as prosocial, lower antisocial behavior, and empathy.

Trait Self-Control

Several self-report measures have been developed to measure dispositional or trait self-control. These are quite heterogeneous in content, with some assessing self-control directly (e.g. Self-Control Scale; Tangney, Baumeister, & Boone, 2004) and other measures assessing related concepts such as impulsivity or sensation seeking. The Self-Control Scale includes items such as "People would say that I have iron self-discipline," and "I refuse things that are bad for me." A number of studies by Baumeister and his colleagues have suggested that people with high self-control are not necessarily better at resisting temptation, but they are better at avoiding it. Avoidance of temptations by minimizing exposure to situations that invite failure is particularly important given that such a strategy would not deplete the limited cognitive resources as much as would brute resistance. Future scale development could focus on the specific avoidance strategies used in particular domains such as dieting and addictive products.

Developmental Differences

Self-control steadily improves from infancy to adulthood. Newborn infants have no control over their emotions, but as they gain muscular control, they begin to regulate arousal by shifting eye gaze or turning their heads away from distressing stimuli. Sensitive caregivers are partners in emotion regulation, soothing distressed infants, removing them from upsetting contexts, and serving as a secure base for infant exploration once mobility is achieved. In childhood, the development of self-control accelerates, and children learn to exchange impulsive behavior for self-regulated techniques such as delay of gratification. Initially, parents scaffold their children's self-control by teaching rules for appropriate conduct, enforcing rules through rewards and sanctions, and modeling self-control strategies. Eventually, children internalize the rules and regulate their own behavior. Participation in early childcare and school settings reinforces and refines the socialization process.

Self-control problems in adolescence are of particular interest because mortality rates increase dramatically due to accidental fatalities. This seems counterintuitive given earlier developments in self control, but sensation and reward-seeking are especially high during adolescence, and the prefrontal cortex is not sufficiently well developed to inhibit risky decision-making (Casey, 2015). The social context plays a strong role; adolescents are particularly susceptible to peer influence, and will engage in dangerous behavior to gain peer approval. Two opposing forces have been described within a variety of dual reward-driven vs. harm avoidant models, and behavioral research investigating the influence of immediate reward feedback on gambling tasks shows the highest risk behavior among adolescents. Sensitivity to motivational cues appears to be enhanced during adolescence, supported by changes in areas of the brain associated with dopamine, including the striatum. It is likely that this particular pattern of high novelty-seeking and risk-taking among adolescents was adaptive in evolutionary history as adolescence marked the critical beginning of the reproductive period.

Future Directions

Many societies and cultures will no doubt continue to place a heavy emphasis on consumerism and instant gratification, with advertising often in a tug of war with self-control over the need for various products. In the end, evidence-based recommendations will probably point to the salutary effects of simpler, slower-paced, mindful lives. Researchers will continue to test the ego depletion hypothesis and specify processes involved in allocation of self-control in daily life. The few daily diary studies investigating people's impulses and the methods they use to self-regulate provide another useful methodological approach for future research. At the same time, applied researchers will continue to test self-regulation strategies in childhood and develop interventions such as mindfulness training to improve children's self-control at school. Preliminary findings indicate that these efforts offer promise for enhancing children's social and academic success.

See Also

Impulsivity
Self-regulation
Self-regulation, Assessment of
Sensation Seeking

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Self-construal

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The term *self-construal* was first coined by Markus and Kitayama (1991), who used it to describe Western versus East Asian conceptions of the self. Although research on the role of the self in cognition, emotion, and motivation was several decades old by this time, most of that research had been conducted in Western cultural contexts, and researchers tended to assume that the nature of self-views and their role in psychological phenomena were universal. In Western European and European American cultural contexts, the self is assumed to be independent of others, defined largely by internal traits, personal preferences, wishes, abilities and goals that are presumed to be fairly consistent across situations. The pursuit of personal uniqueness and the supremacy of individual goals over group goals characterize this conception of the self. Markus and Kitayama labeled this the *independent self-construal*. They contrasted this conception of the self with the prototypical self-construal of Japanese people, the *interdependent self-construal*. In this conception, self-definition is based on one's place in relationships, one's roles (mother, son, student, neighbor), and one's group memberships; relational or group goals are often more important than one's personal goals. The self is assumed to be malleable and adaptable; individuals seek to fit into their roles and relationships rather than to demonstrate a consistent self across situations.

After Markus and Kitayama's initial characterization of independent/interdependent self-construals, researchers made further distinctions in types of interdependent self-construal. Drawing upon research on gender differences in Western contexts, Cross and Madsen (1997; see also Cross, Bacon, & Morris, 2000) argued that Western women were more likely than men to think of themselves in terms of close relationships, leading to a *relational-interdependent self-construal*. Others have distinguished relational-interdependent self-construals from collective-interdependent self-construals, in which group members are highly self-defining.

Researchers today conceive of these dimensions of self-construals as accessible to members of virtually all cultural contexts, but cultures often emphasize one dimension more than the other (i.e. East Asian contexts emphasize interdependence, and European

American contexts emphasize independence). As a result, self-construal theory has opened up a multi-dimensional view of selves that has enhanced research within cultures as well as across cultures.

Cognition

People with highly interdependent self-construal tend to be more sensitive to the context, whereas people with highly independent self-construal tend to be relatively insensitive to the context. This was first demonstrated in work that showed that East Asians were less likely than European Americans to make situational attributions for others' behavior. Likewise, Japanese women's spontaneous self-descriptions are more sensitive to the specific context than were the self-descriptions of American women. Priming independent or interdependent self-construal also leads to differences in context-sensitive or context-free cognitive processes (such as the Embedded Figures task, where one must find a small geometric figure within a larger figure). Self-construal is linked to the tendency to see connections among objects or people (related to interdependent self-construal) or make distinctions between objects or people (related to independent self-construal; see Cross, Hardin, & Gercek-Swing, 2011, for a review).

Emotion

Interdependent self-construal is related to socially engaging emotions such as guilt or feelings of relatedness, whereas independent self-construal is related to socially disengaging emotions such as anger or pride (Kitayama, Mesquita, & Karasawa, 2006). Their research showed that there is a stronger relation between positive socially engaging emotions and general positive emotions for Japanese than for Americans, whereas positively disengaging emotions were more strongly related to general positive emotions for Americans than for Japanese. Other research reveals that East Asians tend to value low arousal emotions (such as calm, peaceful) more than do Westerners; Westerners value high arousal positive emotions (such as enthusiastic or excited) more than do East Asians (Tsai, 2007). Suppression of emotion, especially negative emotion, is typically linked to poor health and well-being for Westerners, but this association is weaker for East Asians, presumably because interdependence is associated with the approval of frequent suppression of emotions that may disrupt the harmony of relationship or group.

Motivation

Independent self-construal has been linked to the desire to be unique and different from others and to pursue personal goals, whereas relational and interdependent self-construal have been linked to the desire to maintain harmonious relations with others and important ingroups and to pursue group goals. Markus and Kitayama (2004) described these as disjoint (independent) vs. conjoint (interdependent) forms of agency. Consistent with this

view, relational reasons for goal pursuit (e.g. doing it for a close other) were strongly related to goal striving for people with highly relational self-construals in both the US and Japan.

A vigorous debate erupted after the publication of a review of East–West differences in self-enhancement by Heine, Lehman, Markus, and Kitayama (1999). These authors contend that the existing literature on the positive consequences of self-enhancement are due to research in Western societies, where the independent self-construal is constructed and maintained by attention to and enhancement of one's internal attributes, abilities, and goals. They argued that in societies as Japan and China, a critical consequence of interdependence is that individuals acknowledge their faults and flaws and strive for self-improvement, so as to maintain harmony in relationships. Heine et al.'s (1999) review found East Asians reported lower levels of self-esteem than did Westerners, and subsequent meta-analytic reviews of the literature supported this claim. Others, however, argued that self-enhancement is a universal motive, and that researchers had overlooked the important domains of self-enhancement for people with highly interdependent self-construals (Sedikides, Gaertner, & Vevea, 2005).

Likewise, variation in self-construal relates to the motivation to be consistent, as demonstrated in studies of cognitive dissonance. For many years, researchers failed to replicate cognitive dissonance results in East Asian societies (especially Japan); they presumed the consistency motive was not as central in the interdependent Japanese cultural context as in the West. Later, others demonstrated that Japanese participants experience less dissonance than Western participants when faced with inconsistency in personal choice, but they experience similar levels of dissonance when faced with inconsistency in choices for others. This indicates that maintaining consistent or appropriate behavior in specific relationships or roles is a powerful motivator for people from East Asian contexts with highly interdependent self-construals (Hoshina-Browne et al. 2005).

Finally, self-construal is associated with differences in self-regulation and means of exerting control. The focus on appropriate behavior in roles and relationships that characterizes the interdependent self-construal contributes to a prevention-focused regulatory style, in which the individual is primarily oriented toward avoiding undesired end-states. In contrast, the focus on expression of personal aspirations and goals and the emphasis on self-fulfillment characteristic of the independent self-construal contribute to a promotion-focused regulatory style, in which the individual seeks to approach desired end-states. Similarly, in stressful situations, East Asian individuals are more likely than Westerners to prefer secondary control (adjusting the self to fit the situation); Westerners, in contrast, prefer to exert primary control (attempting to change the situation).

Interpersonal Behavior

People with highly relational self-construal are more likely to engage in self-disclosure, perspective taking, and interpersonal responsiveness in a new roommate relationship than are lows on this dimension (see Cross et al., 2011 for a review). When interacting with strangers, high levels of interdependent self-construal are associated with a variety of other-oriented behaviors, such as sitting closer, higher levels of mimicry, and lower levels of selfishness, compared to lows. Cross-cultural research has found that self-construal is

related to a variety of communication processes; interdependent self-construal is associated with indirect forms of communication and non-confrontational approaches to conflict, whereas independent self-construal is associated with direct communication and confrontational or dominating strategies in conflict situations.

Methodological Issues

Researchers often use cultural background as a proxy for self-construal; members of East Asian cultures are assumed to have more well-elaborated interdependent self-construals, whereas members of Western European and European American cultures are assumed to have more well-elaborated independent self-construals. Other mechanisms may be responsible for some cultural differences that have been attributed to self-construal. Several measures of self-construal have been developed to test the role of self-construal more specifically (see Cross et al., 2011 for a review). A new seven-dimensional measure of self-construal has been examined across a very large sample of countries (Vignoles et al., 2016).

An early meta-analysis of studies using the common independent/interdependent self-construal measures found that the expected cultural differences in self-construal are not always found (Oyserman, Coon, & Kemmelmeier, 2002). This led to further research on the ways that reference groups may influence responses on Likert-scaled items, obscuring group differences in self-construal. Kitayama and his colleagues (Kitayama, Park, Sevincer, Karasawa, & Uskul, 2009) also argued that cultural mandates to be independent or interdependent are reflected in a wide range of cultural tasks (e.g. to stand out or to fit in, to pursue group goals or pursue individual goals). These cultural tasks are often achieved via a variety of psychological tendencies (e.g. self-criticism vs. self-enhancement, socially engaging vs. disengaging emotions) that may not require conscious deliberation and may vary across situations. Consequently, explicit measures of self-construal may not capture the implicit or automatic ways that people respond to cultural mandates to be independent or interdependent. These arguments highlight the need for a wider variety of implicit or indirect measures of self-construal, and for conceptual approaches that take account of the critical role of implicit processes, social norms and roles, and other inter-individual processes that shape behavior.

Future Directions

There is a growing body of research on the social neuroscience of self-construal, which has examined the neural mechanisms that mediate cultural differences in self-related cognitive processes. Many of these studies have primed independent or interdependent self-construal and have observed differences in the associated neural correlates. Other studies have combined self-construal priming with the use of populations from East Asian and Western contexts to examine how independent or interdependent self-construal may have different neural correlates in the two cultural contexts (see Han, 2013, for a review). This burgeoning field of cultural neuroscience may help uncover new ways that self-construal influences behavior and has the potential to help explain the ways that self-construal is shaped by developmental or socialization processes.

One of the critical issues facing self-construal researchers is the need to study groups outside the common East Asian and Western European/European American populations. Although many societies in Africa, Latin America, Eastern European, and Pacific Island contexts may be relatively collectivistic, it is unknown the extent to which interdependent or relational self-construals capture their conceptions of self. Such work may result in the identification of new dimensions of self-construal that will enhance our understanding of the cultural construction of the person.

There are many more contexts, processes, and psychological phenomena that may be linked to variation in self-construal. Researchers have only recently begun to examine the influence of self-construal in the development and maintenance of romantic relationships, and further research in this area may help explain cultural differences in relationship processes and outcomes. Likewise, some researchers have begun to investigate the role of self-construal in organizational behavior, consumer behavior, and other work or business settings, but considerable terrain in these areas remains unexplored.

See Also

Allocentrism vs. Idiocentrism
Individualism vs. Collectivism
Self-Concept, Expressions of the

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Self-efficacy

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Self-efficacy beliefs (SEBs) are an individual's beliefs about his or her own capacity to reach certain objectives through the orchestration of his or her own course of action. SEBs were conceptualized by Albert Bandura (1977, 1997) and reflect individuals' ability to exercise control of their own lives. SEBs are at the core of an agentic perspective of human functioning that emphasizes individuals' capacity to influence their own functioning and the events of their lives (Bandura, 1986; 1997).

Overall, in the last 30 years, findings from experimental, clinical, longitudinal, and correlational studies have attested that a variety of self-efficacy beliefs contribute to better performance and effective functioning across contexts and ages. Most research has paid attention to specific self-efficacy beliefs concerning the diverse domains of functioning (e.g. education, interpersonal relations, and health). Successful functioning in different areas may in fact require different capabilities, and individuals' appraisals of those capabilities may substantially differ across domains.

In the following sections, we will first address the main intra-individual processes associated with SEBs. We will then present the main correlates to SEBs in the areas of functioning that are especially important for individuals' personal and social adjustment (i.e. interpersonal and emotional functioning, educational achievement, health functioning and organizational functioning).

Intra-Individual Processes Activated by SEBs

SEBs influence a variety of cognitive, decisional, motivational, and affective processes that, in turn, sustain effective performance and enable people to exercise some control over the events of their lives (Bandura, 1997).

With regard to cognitive processes, SEBs influence how individuals anticipate the tasks and problems they have to face. Highly self-efficacious people tend to maintain a broader view of the problem. They anticipate successful scenarios and are more focused on problem-solving

strategies. In the face of strong demands, setbacks or failures especially, highly self-efficacious people tend to maintain good analytical thinking and remain task-oriented.

SEBs are also important cognitive guides that orient the decisions and, in particular, the selection of goals that individuals set for themselves. People usually only undertake those tasks and situations that they feel capable of handling. They avoid setting goals for themselves that they consider unreachable and do not engage in tasks that they perceive as being beyond their capacities. Therefore, SEBs lead people to put long-term effort into developing specific capabilities and career paths (see Career Self-efficacy on p. 1445 of this volume).

When it comes to motivational processes, highly self-efficacious individuals are more likely to attribute their failures to factors that may be modified and controlled, such as lack of effort. This attributional style contributes to counteracting despondency while persisting in goal-oriented behavior. Furthermore, more self-efficacious individuals set for themselves difficult but reachable goals and feel more committed to them. When facing difficulties, they intensify their efforts and seek out effective problem-solving strategies. SEBs also sustain people's ability to overcome obstacles or impediments, to regulate behavior over time and to perceive obstacles as challenging.

Finally, SEBs affect the negative emotional states that individuals experience when they face difficulties. In fact, SEBs reduce self-debilitating thoughts and counteract negative emotional reactions to facing difficulties. Individuals who believe they are not capable of controlling stressors are more prone to dwell on their low coping capacities and perceive the environment as more dangerous, and this contributes to improving their distress and anxiety. Similarly, people who believe they are ineffective in controlling their own dysfunctional thoughts when faced with difficulties are not only more distressed and anxious, but they also experience more depressive feelings.

Self-Efficacy and Interpersonal Functioning

Research has underlined that SEBs in interpersonal relations (in particular, relationships with friends and within family) promote adaptive interpersonal functioning that, in turn, may sustain psychosocial adjustment. During adolescence, when deviant peers may jeopardize adolescents' self-regulation capabilities, SEBs in resisting transgressive peer pressures counteract adolescents' involvement in delinquent and risky behavior (Bandura, 2006). In both youths and adults, higher SEBs in one's capability to establish and maintain positive relations with others (i.e. social self-efficacy) have been found associated with fewer depressive feelings. More socially efficacious individuals can in fact create more supportive and enduring interpersonal relations that probably help them to face discouraging situations (Bandura, 1997).

More recently, research has addressed SEBs concerning the ability to assume others' perspective, namely, empathic SEBs. Empathic SEBs have an important role in sustaining prosocial behaviors (i.e. behaviors that benefit others) over time, which promotes adjustment and life satisfaction at different ages (Alessandri, Caprara, Eisenberg, & Steca, 2009).

Furthermore, family relations are of particular relevance to interpersonal functioning. In particular, research has addressed parental SEBs, which are the beliefs that parents hold about their capacity to care and promote their children's development (Bandura, 2006).

Efficacious mothers experience higher well-being, lower depression, closer attachment to their children, and better relationships with their partners. As children grow up, efficacious parents more effectively monitor children, more openly communicate with their children, give them more support and are more capable of setting effective limits (Bandura, 2006). With regard to children's role, filial SEBs (i.e. children's perceived ability to establish and maintain positive relations with their parents) in adolescence contribute to more open communication and less escalation in conflict with parents over time. Both familial SEBs contribute to higher levels of family satisfaction (Caprara, Scabini, & Regalia, 2006).

Self-Efficacy and Emotion Regulation

Social-cognitive theory has strongly emphasized the role of SEBs in controlling the negative effects of subverter emotions, such as anxiety and depressive feelings. In the last 10 years, researchers have proposed the construct of Regulatory Emotional Self-Efficacy beliefs (RESEs) and examined their role in individual adjustment. Specifically, RESEs concern people's perceived capacities not only to modulate the overwhelming experience of different negative emotions (e.g. fear, despondency, anger, guilt and shame), but also to experience and express positive emotions (e.g. joy, satisfaction, and happiness). Those two distinct RESEs are respectively associated with lower negative effects and higher positive affects (Alessandri, Vecchione, & Caprara, 2014). In particular, longitudinal studies have found that RESEs contribute to maintaining higher levels of self-esteem and experiencing fewer depressive feelings over time. Yet, SEBs about regulating negative emotions are important for counteracting adolescents' shyness and sustaining higher life satisfaction. RESEs also contribute to perceived self-efficacy in interpersonal relations. In particular, individuals who feel capable of expressing positive emotions have higher perceived capacities to take on others' perspectives, whereas those who feel capable of modulating negative emotions feel more capable of handling interpersonal relations, particularly relations with parents in adolescence.

Self-Efficacy and Educational Attainment

Different studies have shown that SEBs are associated with students earning better grades across all school levels (i.e. elementary, middle and secondary school, and university), even when controlling for past performance. In particular, students' and teachers' SEBs have been more frequently examined in promoting academic achievement (Pajares, 2007).

Among students, the most relevant dimension of SEBs is related to self-regulated learning and concerns students' perceived ability to influence their own learning process through self-regulation. Self-regulated students set proximal goals, monitor their own behavior, anticipate how to cope with the obstacles they may encounter, evaluate their progress toward their goals and modify their behavior to accomplish them. Students who feel more capable of regulating their learning activities are more capable of planning their study, self-motivating (e.g. finding a place to study that facilitates concentration), more persistently facing difficulties and also effectively solving academic problems. They have higher aspirations and more accurately evaluate their performance.

Teachers also play a key role in improving students' performance in school. More efficacious teachers are better at managing their classrooms, promoting learning, giving more emotional support, being less critical and motivating difficult students.

Self-Efficacy and Health Functioning

SEBs play an important role in the adoption and maintenance of health-promoting behaviors – such as regular physical exercise, healthy diet, and smoking and alcohol reduction, and the management of chronic diseases, such as diabetes, arthritis, and cancer (Bandura, 2005).

As for academic achievement, it has been found that self-regulatory SEBs are crucial for successful behavioral change. Research has found that, for example, SEBs for overcoming barriers to physical exercise are important predictors of the practice and maintenance of physical activities. In the longer term, people's beliefs in their capabilities to restore control on behavior after a failure or breakdown (e.g. a relapse in alcohol use) are important. Individuals who feel inefficacious in coping with obstacles or recovering after a failure tend to be more discouraged, interpret failure as a sign of a lack of capabilities, and are more likely to give up their goals.

Regarding the management of chronic disease, research findings have shown that better health outcomes in chronic illness are associated with higher SEBs about adopting those self-care behaviors that contribute to controlling the symptoms of illness (Marks & Allegrante, 2005). For example, SEBs in the self-management of diabetes are associated with better adherence to treatment, and thus to more frequent testing of blood glucose, more regular use of medication and lower levels of glucose in the blood. Furthermore, SEBs about tolerating pain are associated with less physical disability, less pain, fewer depressive symptoms, and less use of opioid medication, especially in disease such as cancer or arthritis.

Self-Efficacy and Organizational Functioning

SEBs have been associated with performance and a variety of indicators of well-being and effective functioning in organizational contexts. In particular, most research has addressed work-related SEBs that concern employees' perceived abilities to manage the specific activities that they are required to perform in their organizations. Work SEBs contribute to individuals' capacities to cope with work demands and identify opportunities in different work contexts. Efficacious workers are more able to bear work overload and use effective coping strategies (Bandura, 1997). They achieve better job performance, especially when the roles in the organization are clear. Work SEBs also contribute to sustaining job satisfaction, especially in unstable conditions such as organizational change. SEBs also reduce the negative effects of work conflict, and protect against the risk of burn-out, especially in stressful professions such as teaching and nursing.

More recent studies have shown that people who feel efficacious in their work tend to feel more engaged with it, have a more positive view of the key roles of their organization (e.g. colleagues, supervisors, and top management) and are as a result satisfied with and engaged in their jobs (Consiglio, Borgogni, Di Tecco, & Schaufeli, 2016).

See Also

Self-efficacy, Career
Self-efficacy Theory

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Self-efficacy, Career

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Career Self-efficacy

Conceptualization

Self-efficacy has been an influential construct in psychology since first originated by Albert Bandura in the 1970s as a component of social learning theory and later in the development of social-cognitive theory. Career self-efficacy occupies a central role in social-cognitive career theory, which has been an influential framework for explaining how individuals make career and educational decisions and achieve varying levels of career success and satisfaction in the workplace.

As a basic principle, Bandura describes self-efficacy as pertaining to people's judgments about their capabilities for success in completing different types of actions. Self-efficacy thus describes an individual's confidence about performing a particular behavior, expectations for success in that behavior, or beliefs about one's capacity for agency or self-direction. Self-efficacy expectations have been shown to influence whether an individual will attempt a certain behavior, how much effort will be put into the behavior, and how long the specified behavior will be sustained. Thus, a stronger sense of self-efficacy is associated with a positive attitude about having the available (internal and external) resources to master difficult tasks. Self-efficacy does not necessarily reflect an objective reality or the actual available resources and skills one may have, but the belief of what one can accomplish.

Social-Cognitive Career Theory

Since the 1980s, Robert Lent, Steven Brown, Gail Hackett, and Nancy Betz have been influential in vocational psychology in the development of social-cognitive career theory (SCCT) and in propelling the large body of research and interventions that have stemmed from that framework. SSCT emerged as an extension of Krumboltz's social learning model of career decision-making and was conceptualized as a broad and integrated model for understanding

the development of academic and career interests, the implementation of career choices, and career performance. In recent work, Lent and colleagues have also applied the SCCT model to understand work and life satisfaction.

SCCT highlights the dynamic interplay between three main social-cognitive variables, self-efficacy beliefs, outcome expectations, and personal goals, in shaping career behaviors. Career self-efficacy focuses on those self-efficacy beliefs that relate to career-related domains of behavior, such as career skills or decision-making. In general, people are more likely to prefer activities and choose occupations that they believe are aligned with their perceived self-efficacy.

In addition to the three sets of social-cognitive variables, SSCT specifies a variety of personal, contextual, and experiential factors that interact reciprocally to impact career interests, choices, and performance. While SCCT views the individual as an active agent in career processes, past and current environmental conditions are also recognized as influential. For example, high levels of contextual supports and low perceived barriers may enhance a person's level of perceived self-efficacy. An individual's learning opportunities while growing up may also impact the development of academic and career skills and their self-efficacy beliefs in those domains. Additional individual factors such as personality dispositions, gender socialization experiences, and ethnic identity also influence career development processes, including career self-efficacy. For example, a person who is prone to experience negative affect (e.g. anxiety) may be more sensitive to environmental challenges, and as a result may perceive more obstacles and fewer supports and report lower self-efficacy than a person who experiences more positive affect. Gender role socialization may influence a person's perceived self-efficacy along gender stereotypical lines and thereby circumscribe the development of career interests and goals.

A substantial body of research has accrued to support the tenets of the SCCT model, especially with regard to the importance of career self-efficacy. In contrast with aspects of personality that are considered generally stable and generalizable across contexts, self-efficacy is viewed as dynamic and shaped through the ongoing and bidirectional interplay of individual and environmental factors. Although career self-efficacy may be shaped by genetics and early childhood experiences, social-cognitive theory purports that self-efficacy beliefs are malleable and subject to revision based on changes within the person, in their behavior, or in some aspect of the environment. Interest in the construct of self-efficacy among researchers and practitioners relates to possibilities for enhancing self-efficacy through targeted intervention focused on individual beliefs or behaviors or on environmental conditions. Self-efficacy is also domain specific, such that a person may have high self-efficacy in one domain, such as athletics, but low self-efficacy in another domain, such as social skills. With regard to the proposition that self-efficacy shapes career interests and choices, research has documented the relationship between perceived self-efficacy in specific skill domains and the choice of occupations aligned with those skills. Gender differences in the choice of occupations (e.g. women are more highly represented in "social" occupations and men are more highly represented in "realistic" occupations) reflect traditional gender differences in perceived self-efficacy in the social and realistic (technical and hands on) domains. Meta-analyses analyzing a large number of studies confirm the contribution of self-efficacy in explaining career interests, career choice, performance in school and work, and performance goals.

Career Decision Self-efficacy

Career decision self-efficacy is a derivative of SCCT and represents a specific domain of self-efficacy that has received significant research attention. Choosing a career path is complex because of multiple potential career pathways and the numerous relevant personal considerations that complicate decision-making in a constantly evolving world of work. In the changing global marketplace, people have to frequently re-evaluate their career choices, and modify their behaviors and goals accordingly. For vocational psychologists, addressing career decision self-efficacy is integral for helping individuals to make satisfying career choices. Career decision-making self-efficacy is a person's beliefs about his or her capability to perform tasks necessary for making career decisions, including (1) accurate self-appraisal, (b) gathering occupational information, (3) goal selection, (4) planning for the future and (5) problem solving. These competencies are captured in the career decision self-efficacy scale, published in 1983 by Taylor and Betz. Existing research has found that higher levels of career decision-making self-efficacy contribute positively to adaptive career beliefs and persistence in academic studies, and inversely with career indecision and fear of career commitment. Positive relationships have also been documented between career decision-making self-efficacy and self-esteem.

While career decision self-efficacy is distinct from more stable aspects of personality, research reveals relationships between career decision self-efficacy and a number of the Big Five personality factors. For example, while openness to experience, conscientiousness and extraversion have been positively associated with career decision self-efficacy, neuroticism has been negatively associated with decision-making self-efficacy. Career decision-making self-efficacy has also been negatively associated with trait anxiety and negative affect and positively associated with positive affect. These findings support the notion that individual personality dispositions influence career self-efficacy beliefs, with positive dispositions supporting self-efficacy and with negative thinking during the decision-making process relating to lower self-efficacy. A similar pattern of correlations has been found across European American samples, African American college students, and Latino middle-school students. Research has also examined the relationship of career self-efficacy with more malleable dimensions of personality and ability. Research by Di Fabio and colleagues in the Italian context has found that emotional intelligence, as assessed both as a trait and performance-assessed skill, explains career decision-making self-efficacy beyond the effects of fluid intelligence and the Big Five personality factors.

In consideration of the role of environmental factors in the SSCT model, environmental supports have been identified as a mechanism for enhancing career self-efficacy. Support for career decision-making from parents and teachers can be particularly important for adolescents who are in a developmental phase of self-exploration – often characterized by anxiety and indecision. Lent and Betz found that career self-efficacy mediated the relationship between social support and career optimism. The findings suggest that social support can foster career optimism by increasing one's confidence in being able to make career decisions. When parents can support children's activities that enhance work-related skills (i.e. provide opportunities for mastery), share their own career-related strategies and skills (i.e. provide modeling), and offer positive reinforcement by verbally encouraging their offspring (i.e. social persuasion), adolescents gain confidence in career-related decisions.

Intervention

According to social-cognitive theory as devised by Bandura, self-efficacy can be fostered by focusing on (1) performance accomplishments, (2) vicarious learning, (3) social persuasion, and (4) physiological affective states. These four sources of efficacy information can be used to inform career counseling and psychoeducational interventions. Interventions to enhance self-efficacy might seek to strengthen an individual's beliefs about his or her capabilities through incrementally graded success situations that allow the individual to succeed rather than fail prematurely. Self-efficacy expectations are based upon prior performance accomplishments or mastery experiences, such that successful performance on a particular task fosters an individual's determination to master future demands. Vicarious learning experiences, such as observing a model similar to oneself in age, gender, or race engaging successfully in work situations, can also foster self-efficacy and confidence to engage in activities that otherwise may not be attempted. Social support and persuasion may also be employed to encourage individuals to attempt new and challenging tasks and to persist despite fears of failure. If physiological affective states are undermining a person's sense of efficacy, relaxation exercises or other types of cognitive restructuring exercises might be helpful.

Many psychoeducational interventions have been developed that incorporate these principles. Sullivan and Mahalik, for example, designed a structured career counseling group to increase career-related self-efficacy by focusing on the four specified sources of efficacy. Results indicated that women who participated in the group that incorporated performance accomplishments, vicarious experiences, emotional arousal, and verbal persuasion increased in their career decision-making self-efficacy as well as vocational exploration and commitment. Similar workshops developed by Gati and colleagues with Israeli soldiers transitioning to the work force were also shown to enhance career decision self-efficacy among participants. McWhirter, Rasheed, and Carothers developed and implemented a nine-week career education module for high school sophomores that provided active learning experiences 50 minutes per day pertaining to career decision-making, job hunting, and workplace expectations. In comparison with students enrolled in a health education class, the students enrolled in the career education class demonstrated increased decision-making self-efficacy and vocational skills self-efficacy at post-test and at a nine-week follow-up.

Future Directions

Research provides wide support for the importance of career self-efficacy for career interests, choice, performance, and satisfaction. Substantive research also documents the relationship of career self-efficacy with the range of personal, social-cognitive, and environmental factors that make up the SSCT model. The body of research on career self-efficacy has expanded over time to include its interaction with a broad range of personal and contextual variables and its contribution to a variety of career and life outcomes. Although SSCT and self-efficacy have been studied across diverse racial, ethnic, and national contexts, self-efficacy has been critiqued as a construct that places too much responsibility on the individual and not enough on societal factors. More research is needed on how self-efficacy and other social-cognitive variables interact with culture, race, socioeconomic status, ableness, and sexual orientation and with career supports and barriers to

influence career choice and success. The impact of racism and other forms of discrimination on perceived self-efficacy deserves further attention. Although self-efficacy is a promising construct for intervention related to its modifiability, more research is needed to fully document the processes that enhance self-efficacy. In addition, research should explore whether those enhancements are sustained over time and translate into more satisfying career choices that overcome socio-economic barriers and systematic oppression. More intervention research on self-efficacy interventions needs to be completed with varied populations with attention to how the interventions should be tailored in deep and meaningful ways to enhance their effectiveness for specific populations.

See Also

Albert Bandura
Big Five
Career and Vocational Interests Abilities, Assessment of
Personality, Interests, and Careers
Self-efficacy
Self-efficacy Theory
Social Learning Theory/Social-Cognitive Theory (Bandura)

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Self-esteem, Expressions of

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Self-Esteem

Self-esteem remains one of social psychology's central constructs, despite disagreements about its theoretical interpretation and methods of measurement. This entry provides an overview of alternative views of structure and empirical controversies about the function of self-esteem in personality. Special emphasis is placed on recent advancement in implicit measurement of self-esteem, with a brief discussion of implications for developmental research.

Many personality theorists have characterized self-esteem as an essential ingredient of personality. Remarkably, however, there are wide variations in their conceptions of how to conceive the functioning of self-esteem. For Carl Rogers, self-esteem was essential both to psychological health and to the likelihood of achieving life goals. Similarly, for Abraham Maslow, self-esteem was a basic human need, fulfillment of which contributed to self-actualization. Gordon Allport conceived self-esteem as one of the seven aspects of the self that characterize the healthy, mature, adult personality, also viewing self-esteem's development as occurring in early childhood. Rogers, Maslow, and Allport all associated high self-esteem with a broad range of desirable outcomes, a view similar to that of psychoanalytic theorists who conceived low self-esteem as maladaptive (e.g. Alfred Adler's "inferiority complex" and Karen Horney's "self-contempt").

Structure of Self-Esteem

Self-esteem is widely conceived as a relatively stable trait, consisting of positive self-regard or attitude, and arising from normal maturation. At the same time, there exist multiple conceptions of self-esteem's structure, ranging from relatively simple networks to multi-faceted evaluative schemas. At the simpler end are ideas of self-esteem as "a positive or

negative attitude toward a particular object, namely, the self" (Rosenberg, 1965, p. 30) and "the association of the concept of self with a valence attribute" (Greenwald et al., 2002, p. 3). At intermediate levels of complexity are cognitively based views of self-esteem such as "a personal judgment of worthiness that is expressed in the attitudes the individual holds toward himself" (Coopersmith, 1967, p. 5) and more affectively based ones such as "feelings of affection for oneself, no different, in kind, than the feelings of affection one has for others" (Brown & Dutton, 1995, p. 712). More complex are models of self-esteem as a "combination of cognitions and evaluations of many attributes of self" (Wylie, 1979, p. 4), as "a fraction of which our pretensions are the denominator and the numerator our success" (James, 1890, p. 310), as a difference "between an individual's ideal and actual concepts of himself" (Cohen, 1959, p. 103), as "the component of the self-system which regulates the extent to which the self-system is maintained under conditions of strain" (Ziller, Hagey, Smith, & Long, 1969, p. 84), and as "the feeling that one is an object of primary value in a meaningful universe" (Greenberg et al., 1992, p. 913).

Functions of Self-Esteem

Despite wide endorsement of the importance of self-esteem, there is substantial variation in theoretical conceptions of *how* self-esteem functions in ways that justify its status as an essential ingredient of personality. The first of three categories of functional views includes those that postulate a *protective or defensive* function. The nature of how a threat is conceived varies, including (1) threats to social acceptance (sociometer theory), (2) negative consequences of achievement failure (affect regulation model of self-esteem functioning), or (3) the prospect of death (terror management theory).

A second category of theories proposes *self-promotive* functions. These include: (1) self-determination theory's view that positive self-esteem fulfills needs for competence, relatedness, and autonomy, (2) self-actualization theory's view that self-esteem is a learned human need, which, once met, paves the way for satisfaction of higher-order needs such as self-actualization, and (3) humanistic personality theory's view that self-esteem serves a need for unconditional positive regard.

A third category of theories postulates that self-esteem serves an *identity-maintenance* function. These include: (1) social identity theory's view that low self-esteem motivates identification with positively regarded groups, (2) self-affirmation theory's view that high self-esteem provides a resource to affirm a threatened identity in an alternative domain, (3) self-verification theory's view that people seek to maintain stable and coherent self-views (identities), and (4) balanced identity theory's view that identities, attitudes, and self-esteem tend to self-organize on principles of affective–cognitive consistency.

Defensive and promotive functions of self-esteem can be seen as homeostatically linked, with the defensive function sustaining self-esteem at a level high enough for promotive functioning to be effective. The identity-maintenance function also suggests that self-esteem is acting homeostatically. Thus, all three types of function are consistent with a higher-order theme that self-esteem serves a personality-stabilizing function.

Predictive Validity of Self-Esteem

The uniformity of these views in treating self-esteem as a desirable trait makes it somewhat surprising that none of the theories of self-esteem function has an accompanying conclusive body of supporting empirical research. An extensive literature review by Baumeister, Campbell, Krueger, and Vohs (2003) concluded that predictive validity of self-esteem measures with respect to psychological health, well-being, school achievement, and occupational success, is generally very modest at best, with the majority of variance in these indices left unaccounted for: High self-esteem does not cause better academic performance, occupational success, or leadership (nor does low self-esteem cause aggression, tobacco/alcohol use, or becoming sexually active at an early age). This lack of strong predictive validity of self-esteem for positive outcomes suggests that the benefits of high self-esteem may be fewer and weaker than personality psychologists such as Rogers and Allport had conceived.

Implicit Measures of Self-Esteem

Some of the weakness of empirical evidence for the various theories is almost certainly due to limitations of available measures of self-esteem. The most widely used self-esteem measures are highly transparent sets of self-report items, for which most respondents will know that they are responding to an assessment of some aspect of self-positivity. Widespread understanding that self-esteem is a desirable trait assures that these transparent measures will assess a mixture of self-positivity and impression management. For example, the estimates of contamination by impression management for the Rosenberg Self-Esteem Scale range between .26 and .45 in terms of correlations with social desirability and self-deception.

A more recent development in assessing self-esteem that may avoid self-presentational distortion is use of the Implicit Association Test (IAT). It has been found that IAT measures of self-esteem correlate quite weakly with self-report measures of self-esteem. However, there is no strong reason to expect implicit and explicit measures of self-esteem to be more than weakly correlated, and discrepancies between explicit and implicit self-esteem may be meaningful and of theoretical importance.

Disappointingly, implicit measures of self-esteem correlate weakly with one another. A likely explanation of this weak intercorrelation is in psychometric weaknesses in most of the available implicit measures. However, among implicit measures, the IAT has the highest test–retest reliability and the best temporal stability over a four-week period.

A notable exception to the observation of predictive validity problems for self-esteem measures is the substantial body of theoretical confirmations of predictions of balanced identity theory (BIT; Greenwald et al., 2002) from studies that have used IAT self-esteem measures. According to BIT's *balance–congruity* principle, the association between two concepts should strengthen when both concepts are associated with the same third concept. For people who already associate self with *good*, associating a *group* with *good* should lead to the development

of an additional association between *self* and that *group*. One resulting prediction is that those high in self-esteem will identify with their in-group more than will those low self-esteem. In research testing BIT's balance–congruity principle, confirmations have been obtained consistently with IAT self-esteem measures, while results with parallel self-report self-esteem measures do not reveal the theoretically expected patterns (Cvencek, Greenwald, & Meltzoff, 2012).

Self-Esteem in Children

Developmental scientists investigate the origins, causes, and developmental progression of self-esteem. Important work on young children's self-evaluations has been done by Harter and colleagues using picture identification and self-report. Harter has found that young children (ages 3–7) can evaluate themselves in terms of *particular* cognitive abilities ("I know the alphabet"), physical abilities ("I can tie my shoes"), their appearance ("I am happy with the way I look"), and other specific characteristics. Findings show that these domain-specific self-evaluations are highly positive for the majority of young children, agreeing with social psychology research showing that the vast majority of adults have a positive attitude toward self.

Harter and colleagues have described difficulties in investigating self-esteem in preschool children. Owing either to cognitive limitations or to limitations of available measuring instruments, young children show no evidence of integrating the domain-specific self-evaluations into a higher-order, overall evaluation of themselves. Children apparently cannot verbally report on their global self-esteem, but only on their self-concepts in particular areas (such as math, physical achievements, etc.). This limitation does not dictate that they lack a global form of self-esteem. It has been hypothesized that, although young children are unable to demonstrate global self-esteem in self-report, it nevertheless is manifest in their *behavior*. Using a Q-sort method with experienced preschool teachers, researchers have identified behaviors that are interpreted as reflecting levels of global self-esteem in preschool children (e.g. displays of confidence, curiosity, and independence).

Indirect measures (ones not relying on self-report) are used increasingly by developmental psychologists. To measure preschool children's self-esteem, recent studies have adapted the IAT to measure self-esteem without relying on self-report (Cvencek, Greenwald, & Meltzoff, 2016). This has permitted investigations that compare roles of implicit and explicit self-esteem in children, revealing now that self-esteem – when measured implicitly but not when measured by self-report – is evident in children as young as 5 years of age, who display affective–cognitive consistency of the same type previously demonstrated for adults.

See Also

Abraham Maslow
Alfred Adler
Big Five
Carl Rogers
Gordon Allport
Implicit Motives, Assessment of
Karen Horney

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Self-regulation

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Introduction: What is Self-Regulation?

Self-regulation is a psychological process through which people bring their behavior and cognition in line with their goals, and is marked by effortful and voluntary control. For self-regulation to be successful, one must (1) be aware of their actions and thoughts and (2) have the capacity to control and change them in the face of external, internal, or environmental influences.

The general organizing framework of self-regulation begins with foundations, extends to Type 1 and Type 2 processes, and ultimately reaches goal-related activity. *Foundations* refer to basic tendencies that are part and parcel of self-regulation, and include executive function, temperament, and personality. Executive function is the skill and capacity that allows people to engage in planning, decision making, error correction, and inhibition. Temperament involves individual differences in reactivity that are expressed through emotional, motor, and attentional domains. Finally, personality comprises the patterns of behavior and cognition that are consistent over time and situations, and also reflects individual differences in strength and sensitivity of dispositions. These foundations can influence goal-related activity for self-regulation directly or indirectly via Type 1 and Type 2 processes.

Type 1 processes are described as self-regulation that occurs across time and situations in pursuit of long-term goals. This includes forethought/planning, whereby people set goals and make plans to achieve them. Type 1 processes also include performance, which refers to exercising self-control for the purpose of long-term goals. Lastly, people scrutinize their behavior and reflect on whether it matches their goals during monitoring/self-reflection. In contrast, *Type 2 processes* are described as self-regulation for short-term goals. Type 2 processes include self-monitoring, whereby people monitor their behavior and address any disruptions in their goal pursuit. People can also determine whether their behavior is goal-related during self-evaluation. Finally, people reinforce goal-related behavior in a positive or negative manner.

In *goal-related activity*, a goal is initiated and leads to self-regulatory behaviors and thoughts. For example, imagine that Beverly desires to lose 10 pounds before her son's wedding in a few months, and has decided that today is the day she starts working toward that goal. Following initiation of the goal, Beverly would next make assessments whereby she compares her self-regulatory goal and the means to achieving that goal, yielding specific planning (e.g. exercising daily, avoiding junk food). The subsequent pursuit of Beverly's goal requires persistence, maintenance, and self-monitoring in the face of internal and external challenges (e.g. successfully avoiding junk food even when she craves it or it is offered). If Beverly evaluates herself and feels her current behavior is incompatible with her goal, she can use locomotion to move from her current state to another state (e.g. packing a healthy lunch instead of eating out with co-workers). In addition to active goal pursuit behaviors, Beverly's effective self-regulation also allows her to disengage from those behaviors if her goal becomes irrelevant or is achieved.

The capacity for people to engage in self-regulation can be conceptualized as a continuous dispositional variable. People with higher dispositional self-control tend to be more self-efficacious, are better able to achieve their goals, and have more successful careers and relationships. Conversely, persons with lower dispositional self-control tend to be more impulsive, have difficulty persisting in goal pursuit, and often experience less career and relationship success.

Moreover, there are two behavioral styles that help explain self-regulation as personality. First, *behavioral inhibition* reflects the capacity to control actions through restraint. People who commonly use behavioral inhibition are sensitive to punishment and are prone to anxiety and avoidance, and there is typically a prevention focus; that is, an emphasis on avoiding negative outcomes and prioritizing responsibility and duty. Second, *behavioral approach* reflects the capacity to perform actions relevant to achieving self-regulatory goals. People who use a more behavioral approach are sensitive to reward and are prone to impulsivity and novelty-seeking, and there is typically a promotion focus; that is, an emphasis on attaining positive outcomes and prioritizing growth and achievement.

Five Factor Model and Self-Regulation

People can use different forms of self-regulation, and these different forms are associated with the Five Factor Model of personality. People with higher scores on openness to experience, extraversion, and agreeableness tend to use a behavioral approach style of self-regulation, and people higher in extraversion and agreeableness tend to make group or co-operative goals. The most successful self-regulators, however, are people higher in conscientiousness. More conscientious people are known for their effort expenditure, persistence, and efficient use of time and are excellent self-regulators because they monitor their behavior and manage their time and environment.

On the other hand, people higher in neuroticism scores tend to be particularly unsuccessful self-regulators. Neurotic people tend to use behavioral inhibition to self-regulate but lack control and are unable to direct their behavior to effectively pursue goals; thus, more neurotic people tend to fail at self-regulating. People who are lower in neuroticism and high in conscientiousness are successful at self-regulating because they understand their goals and are able to effectively work toward them, even in adverse conditions.

Self-Regulation Failure

When is self-regulation *un*successful? Researchers have identified several major threats to effective self-regulation. The most frequent reason people use self-regulation is to control their impulses (e.g. a chocolate advertisement may trigger an impulse in Beverly to buy and consume chocolate). Sometimes impulses lead people to give in to temptation, however, sometimes exposure to stimuli that would typically lead to impulsive behavior yields an *increase* in effective self-regulatory behavior. This effect occurs most often when people have a history of successful self-regulation while exposed to relevant temptation. In this case, the stimulus that triggers an impulse also activates motivation and strategies that work toward self-regulatory goals.

In addition to external stimuli that threaten self-regulation, experiencing internal feelings of emotional and/or social distress can undermine effective self-regulation. For instance, when people experience negative emotions they are less likely to delay gratification and also experience reduced working memory, which undermines the monitoring process inherent in self-regulation. Sadly, a vicious cycle often emerges wherein negative emotions undercut working memory, and diminished working memory then induces more negative emotions. Common social situations that can trigger negative emotions include social rejection or stereotype threat.

Self-regulation also often fails because of a phenomenon known as *lapse-activated patterns*, where giving in to a single temptation leads to total disinhibition and abandonment of self-regulatory goals and produces further lapses in self-regulation. For example, Beverly may give in to her chocolate-craving impulse and eat one piece of chocolate, but before she knows it she has eaten the entire box and opened another. Lapse-activated patterns are frequently explained by the *abstinence violation effect*; people react to self-regulation failure with feelings of despair, guilt, and personal let-down. Unfortunately, people are likely to experience additional lapses in self-regulation with this combination of negative emotions and beliefs about personal failings.

The presence of others has an enormous capacity to influence successful self-regulation as well. For instance, *deindividuation* refers to the phenomenon whereby people lose their sense of individual identity when they are in a group. Being part of a group enhances feelings of anonymity and reduces self-awareness, which together lead to self-regulation failure. If Beverly feels more anonymous at a group dinner party, she may feel less accountable for her actions and more likely to engage in counter-goal behavior (e.g. consuming junk food). Other people may further influence self-regulation by exhibiting behavioral norms that are not aligned with one's self-regulatory behaviors. For example, if everyone at the dinner party is eating at least two pieces of cake for dessert, Beverly may be more likely to follow suit, a failure in her pursuit of her self-regulatory goal.

Situational variables, such as the psychological resources available, also influence self-regulation success. The strength model of self-regulation suggests that people have limited psychological "willpower" resource that is used to enact self-regulatory behavior. When one's self-regulatory capacities are tapped, often by engaging in self-regulation, they enter a state of *ego depletion* wherein they temporarily possess fewer psychological resources to exert willpower should they need to engage in additional self-regulation, and thus, lead to self-regulatory failure.

Finally, alcohol intoxication is one of the strongest threats to self-regulation. Alcohol leads to self-regulation failure by reducing self-awareness, impairing the capacity to inhibit counter-goal behaviors, and decreasing the ability to notice self-relevant cues and obtain evaluative feedback. Moreover, alcohol increases the appeal of and desire for rewards. Failure in self-regulation associated with alcohol intoxication, nonetheless, occurs only when there are strong instigating pressures (e.g. Beverly has multiple drinks because every-one else at the dinner party is doing so).

In sum, self-regulation refers to the process of controlling thoughts, feelings, and actions to manage short- and long-term goals. People exhibit individual differences in their dispositional capacity to effectively self-regulate and the self-regulatory strategies they use, and the process of self-regulation is also meaningfully related to core established personality variables in the Five Factor Model. There are, however, a number of external or internal factors that can cause self-regulation to fail, including experiencing negative affect and/or reduced self-awareness, the presence of others, being in a state of ego depletion, or alcohol intoxication. Understanding threats to self-regulation, practicing small acts of self-control, and increasing self-awareness can improve the overall ability to effectively self-regulate. To be sure, the process of self-regulation is important to understand through the lens of personality and individual differences.

See Also

Dark Triad
Impulsivity
Narcissistic
Personality Disorder
Self-control
Temperament Theory of

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Sensation Seeking

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Definition

The relevance of the construct of sensation seeking is suggested by the extensive scientific literature on this topic. At the beginning of 2016, entering "sensation seeking" as keyword in PsycINFO, there were more than 4,000 publications. In addition, PsycINFO reported 207 publications in academic journals only for the year 2015.

Sensation seeking, as defined by Zuckerman in 1994, is a personality trait characterized "by the seeking of varied, novel, complex, and intense sensations and experiences, and the willingness to take physical, social, legal, and financial risks for the sake of such experiences." This definition implies that the high-scoring individual pursues activities which could be associated with some degrees of risk, but that risk is not the determinant of the behavior itself. The risk is a possible consequence of the behavior enacted, and the individual accepts it in order to reach the desired level of arousal. Zuckerman preferred the term "sensation" instead of "stimulation," since the reinforcement for the behavior is manifested in the sensory effect produced by the stimulation. Indeed, the high sensation seeker looks for external stimuli that heighten the chance of experiencing internal sensations. Moreover, Zuckerman pointed out that "seeking" is used in order to highlight that the construct reflects an active mode; if sensation seekers are in the sensory deprivation condition, they are able to stimulate themselves (e.g. whistling or producing vivid fantasies).

More specifically, sensation seeking comprises four dimensions:

- *Thrill and adventure seeking*, namely the desire to take part in activities that involve physical risk (e.g., mountain climbing, scuba diving);
- *Experience seeking*, that is looking for new personal or inner experiences (e.g., exploring an unknown city alone, trying hallucinogenic drugs, trying new foods);

- *Disinhibition*, which refers to social and sexual activities characterized by disinhibition (e.g., enjoying the company of swingers, drinking liquor, or smoking marijuana to get high);
- *Boredom susceptibility*, or intolerance of activities that are repetitive (e.g., getting bored seeing the same faces, not enjoying a movie whose plot can be predicted in advance).

The Sensation Seeking Scale form V (SSS-V) is the most commonly used self-report instrument for assessing sensation seeking and these four components. It includes 10 items for each scale, for a total of 40 items. There are two sentences (A and B) for each item, and the subject indicates which of the two is most representative of him/her. Zuckerman developed the first form of the SSS in the 1960s in order to use it in an experiment regarding sensory deprivation; the scale was based on the idea that people can have different optimal levels of stimulation and arousal, which in turn could affect their activities.

Other instruments used to evaluate this construct are the Impulsive Sensation Seeking subscale of the Zuckerman-Kulman Personality Questionnaire (ZKPQ) and the Arnett Inventory of Sensation Seeking (AISS). The ZKQP consists of 99 true-false items and is scored on six scales: Impulsive Sensation Seeking, Neuroticism-Anxiety, Aggression-Hostility, Sociability, Activity, and Infrequency. The first scale, the one specifically for measuring sensation seeking, is made up of 19 items addressing the need for thrills and excitement, preference for unpredictable situations and friends, and the need for novelty and change. The AISS includes 20 items and has two scales (Intensity and Novelty); it asks subjects to indicate by means of a 4-point Likert scale their agreement with each item. A prominent feature of both the Impulsive Sensation Seeking scale of the ZKPQ and the AISS is the lack of any reference to specific sensation seeking activities; these, in contrast, are present in the items of the SSS-V.

Sensation Seeking and Impulsivity

Sensation seeking and impulsivity are two different constructs. In earlier literature, sensation seeking was described as a component of impulsive behavior; however, they are two different constructs. More specifically, impulsivity refers to a predisposition toward rapid and unplanned reactions to stimuli (either internal or external), with few or any considerations of the negative consequences that the enacted behavior could have for oneself or others. In addition, impulsivity is characterized by a decrease from childhood to adulthood; this decrease is most significant during adolescence, probably because of the maturation of the cerebral areas devoted to the cognitive control. In contrast with impulsivity, sensation seeking shows a linear increase from early to middle adolescence. It has a different developmental trajectory compared to impulsivity, supporting that they are two different constructs.

Biological Correlates of Sensation Seeking

Sensation seeking is a personality trait whose biological correlates have been widely studied, in particular with regard to the neuroendocrine and gonadal systems.

There is evidence that sensation seeking (especially the components of disinhibiting behavior preference and experience seeking) is correlated with low levels of cortisol (i.e., stress hormone) and hence with a high stress resilience. Moreover, low levels of cortisol could lead to increased activity in the dopamine systems and to decreased activity in the serotonergic systems. However, there are contrasting findings about neuroendocrine response between human and animal studies, suggesting the need for major research on this area. With regard to the gonadal system, some studies found a positive correlation between the disinhibiting behavior factor of sensation seeking and androgen and estrogen levels in males, as well as with levels of follicular and luteal estrogens in females.

Sensation Seeking and Demographic Differences

Some demographic variables have been analyzed with regard to sensation seeking, including age, gender, and culture. As regards age, there are no significant differences in sensation seeking between 16 and 20 years, while there is a subsequent decline from age 20. Another difference in sensation seeking scores emerges in relation to gender. Males report higher scores than females on three of the four scales of the Sensation Seeking Scale (i.e., Thrill and Adventure Seeking, Experience seeking, Disinhibition, Boredom susceptibility). More specifically, there is no gender difference on the Experience seeking scale, and the greatest difference is on the Disinhibition scale. Some studies have also compared Black and White college students, showing that the Disinhibition scale is the only one of the four that does not show significant differences between the two groups.

Some Characteristics of High Sensation Seekers

People high on sensation seeking are characterized by a great deal of tolerance for high intensity and painful stimuli, and by a high level resilience to negative stressors. Moreover, high sensation seekers appraise many situations as less risky than low sensation seekers do; this could explain their propensity to engage in risky activities. They also seem to process information efficiently, however, this does not guarantee high levels of school achievement. Another cognitive characteristic of high sensation seekers is a tendency to accept as true ideas that do not have any theoretical foundation and which are merely speculative. Finally, they prefer visual stimuli that are complex over simple and symmetrical ones. In the area of attitudes, high sensation seekers are characterized by permissive attitudes regarding sexuality and political liberalism, namely the tendency to prefer immediate change with less concern for consequences for the social order.

Negative and Positive Behaviors Correlated with High Sensation Seeking

The arousal theory suggests that when an individual experiences physiological under-arousal as unpleasant, he/she will engage in behaviors directed at increasing the level of arousal. However, high sensation seeking individuals can choose various activities in order to reach the desired level arousal; these activities can be either positive or negative.

For example, there are people that engage in negative activities with high risk, such as high-risk sports, gambling, risky driving, risky sexual behaviors, and excessive use of alcohol or drugs. However, other people can channel their need for sensation seeking into the choice of a job that can satisfy this need; thus, they prefer occupations that involve novel situations, flexibility, and unstructured tasks. More specifically, males with high levels of sensation seeking are interested in jobs that require personal interactions, while they avoid business and clerical jobs. On the other hand, high sensation seeking females tend to reject historically typical female occupations such as teaching or being a housewife. Finally, with regard to high-risk occupation (e.g., law enforcement, aviation), there seems to be an association between these jobs and scores on the Thrill and Adventure Seeking scale, and not the general level of sensation seeking. In addition to occupational choice, some other individuals appear to satisfy their need for high arousal by means of other positive activities such as hard rock music, high impact sports (i.e., rock climbing or parachute jumping) or traveling. It is interesting to note that people with levels of high sensation seeking are also more likely to volunteer for research experiments that involve drug taking, sensory deprivation or hypnosis, since these activities are associated to new and unusual experiences. Thus, while the literature highlights how many negative behaviors are correlated with high levels of the sensation seeking trait, there are also some positive behaviors correlated with it.

As pointed out by Norbury and Husain (2015), it is important to consider the key role of the environment in influencing the specific behaviors that the individual will pursue in response to his/her high level of sensation seeking. Families with a high socio-economic level may have the possibility of making available for their sons and daughters socially acceptable behaviors and outlets, such as travels and adventure sports. On the other hand, families with a low socio-economic level may not be able to provide such opportunities, so that risky, antisocial or criminal activities could be the only choice provided by the environment. Indeed, even if there is a strong genetic basis for the expression of sensation seeking, social factors could also have an influence on it. For example, parents with high sensation seeking, compared to low-sensation-seeking parents, could be more likely to offer more stimulating situations to their children and might be more likely to stimulate autonomy in their children as well. Most likely, social and genetic influences interact in contributing to the expression of the sensation-seeking trait.

Sensation Seeking and Psychopathology

With regard to psychopathology-related research, a large number of studies are related to addictions: substance-related addictions, such as alcohol, tobacco, marijuana, or cocaine, as well as behavioral addictions, such as internet addiction or gambling. However, there are many other behaviors that do not reflect a diagnostic category that have also been analyzed with regard to their relationships with the sensation seeking construct (such as risky driving). Adolescents and youths are the most studied populations, given the increase in risky behaviors typical of these ages.

In analyzing the relationship between sensation seeking and specific problem behaviors, it should be kept in mind that there may possibly be different correlations between the same behavior and the four sensation seeking components proposed by Zuckerman.

For example, regarding risky driving (such as tailgating too closely or driving while impaired) many studies found a positive relationship between risky driving and sensation seeking, especially the Thrill and Adventure Seeking dimension. In contrast, the dimension most correlated with alcohol use is Disinhibition. In addition, we have to bear in mind that sensation seeking is only one of many different traits that interact to predispose someone to the development of a clinical disorder; not everyone with high sensation seeking will develop a clinical disorder.

See Also

Addiction and Addictive Personality
Biological Models of Personality-Psychophysiological
Impulsivity
Personality and Risk-Seeking
Risk Taking
Zuckerman-Kuhlman Personality Questionnaire (ZKPQ)

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Shyness

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Shyness Defined

Shyness can be defined by the presence of anxious reactions and excessive self-consciousness and negative self-evaluation in the response to real or imagined social interactions to the degree that it produces enough discomfort to interfere with and inhibit one's ability to perform successfully in social situations, often to the extent that it can also disrupt the fulfillment of one's personal and professional goals. The affective/physiological component of shyness reflects the anxiety, muscle tension, increased heart rate, upset stomach, and an assortment of other psychophysiological reactions experienced by shy people. The cognitive component of shyness reflects the excessive sense of self-consciousness (e.g. Everybody is staring at me), negative self-appraisal (e.g. What I said was so stupid), irrational belief system (e.g. Nobody at the party will find me interesting) characteristic of the way that shy people think about themselves. The behavioral component of shyness is expressed by behavioral inhibition (e.g. not speaking to others at a party) and social avoidance (e.g. avoiding eye contact or standing in the corner during a group discussion). Individuals expressing the trait of shyness also demonstrate a slow-to-warm tendency characterized by an extended period of adjustment to social, especially novel, situations. In contrast to shyness as a trait, the state of situational shyness is the transitory experience of the characteristic features of shyness that can be triggered by a variety of situations, with the most frequent being interactions with authorities, one-to-one interactions with members of the opposite sex, and unstructured social settings.

Pervasiveness of Shyness

A consistent pattern of culture-specific estimates of shyness is the large percentage of participants in those cultures surveyed who reported experiencing shyness – from 31% in Israel to 57% in Japan and 55% in Taiwan. A more moderate rate of approximately 40% of

participants in the United States who reported experiencing shyness is similar to those participants surveyed in Canada, Germany, India, and Mexico.

Measurement of Shyness

The most frequently used measure of shyness is the Revised Cheek and Buss Shyness Scale (RCBS). The RCBS contains 20 items assessing the three principal dimensions of shyness: affective/physiological (e.g. "I feel tense with people I don't know"), cognitive (e.g. "I feel painfully self-conscious when I am around strangers"), and behavioral (e.g. "it is hard for me to act natural when I am meeting new people").

Subtypes of Shyness

Subtypes of shyness reflect the manner in which shy individuals express their symptoms of shyness. Expressions of shyness by publicly shy individuals tend to emphasize the behavioral component of shyness, such as being too quiet (e.g. not participating in a conversation), behaving awkwardly (e.g. avoiding eye contact or keeping an extended personal space from others), and failing to respond appropriately in social situations (e.g. not acknowledging a compliment). Expressions of shyness by privately shy individuals tend to emphasize the affective component of shyness, such as through intense psychophysiological arousal (e.g. pounding heart, muscle tension, and anxiety reactions). Expressions of shyness by socially anxious shy individuals tend to emphasize the cognitive component of their shyness, such as being excessively self-conscious (e.g. "Do my clothes fit right?") and overly concerned about being evaluated socially by others (e.g. "I wonder what she thinks of my comment?"). The identification of the different types of shyness also has implications for their treatment.

Similarities of Shyness to Other Constructs

Although similar in their overt expression (e.g. remaining at the periphery at social gatherings), introversion and shyness are not interchangeable constructs. Introverts, like extraverts, do not fear social situations, but simply prefer more sedate, solitary activities, and gravitate toward the periphery of social situations as an expression of this preference. Shy individuals, similar to extraverts, express a desire to be with others and demonstrate a tendency to seek out social situations to be in the proximity of others in an attempt to meet this desire but are inhibited in their efforts to interact with others by their excessive self-consciousness, negative self-evaluation, and perceived lack of social skills (e.g. inability to initiate and maintain conversations), and, unlike extraverts but similar to introverts, gravitate toward the periphery of social situations. Social anxiety disorder (also referred to as social phobia), which is experienced by approximately 12% of the U.S. population, involves the experience of anxiety and self-critical evaluation in social settings in response to the fear of evaluation of one's public performance (e.g. speaking to a crowd) by others and a

greater disruptive influence on one's social behavior to a degree beyond that of the experience of shyness (e.g. avoid going to parties). Unlike the experience of shyness, more extreme expressions of social anxiety disorder involve feelings of anxiety and excessive critical self-evaluation to such a heightened degree that it can serve to have a much more pervasive and disruptive influence in (e.g. signing a check, talking on the telephone, or using a public restroom) and the avoidance of (e.g. eating in public, getting on public transportation, or going to the movies) a variety of everyday situations.

Explanations of Shyness

Explanations of shyness include both biological and psychological contributions, as well as their interaction. Biological contributions to shyness include elevated levels of certain stress hormones (e.g. cortisol). Genetic explanations of shyness in early childhood focus on the inherited temperament of high reactivity, which is characterized during infancy by an excessive reaction (e.g. excessive crying and vigorous movement of the head and limbs for a prolonged period of time) in response to novel sources of stimulation (e.g. loud noises, strong smells). High reactive infants also display a greater degree of behavior operationally defined as timid but frequently referred to as "acting shy" (e.g. playing near the primary caretaker) and characterized by social avoidance (e.g. running and clinging to the primary caretaker when a stranger enters the room) during early childhood and experience more problems with anxiety during adolescence. Neurological explanations of shyness focus on individual differences in certain brain structures associated with the acquisition of the emotional responses of fear and anxiety, such as the bed nucleus of the striate terminals, the amygdala, and hippocampus, through the process of classical conditioning. It is suggested that due to their greater degree of sensitivity, highly reactive individuals condition fear and anxiety responses to a greater degree and to a wider range of social situations than less reactive individuals, resulting in the manifestation of a more limited comfort zone. The evolutionary benefits of shyness include cautionary behavior in novel and potentially threatening situations and the facilitation of social exchange and co-operation through the reduced tendency for self-serving expression.

Environmental factors associated with explanations of shyness include overprotective parenting styles that foster a lowered level of frustration tolerance for anxiety and stress when developing social skills through play during early childhood (e.g. parents taking over the play activity). Self-report causes of shyness include inability to make friends due to frequent moves by one's family, embarrassing experiences in school during childhood (e.g. being teased, bullied), and failure to learn social skills due to parents not socializing with other families. Explanations based on the interactionist account of shyness suggest that certain biological factors (e.g. inhibited temperament) combined with certain family dynamics (e.g. overprotective parents) contribute a more fearful reaction of social situations due to a reduced sense of self-confidence as a result of the child not being permitted to master the social skills during childhood that are necessary for navigating the more complex social situations encountered during adolescence and adulthood. However, it should be made very clear that the complexities of shyness have made it difficult to provide a clear and definitive answer to the question of "What causes shyness?"

Culturally based explanations of shyness suggest that those personality factors associated with shyness, such as lowered self-perceived interpersonal competencies and expectations of rejection, are experienced to a greater degree in Asian cultures, which tend to be more collectivist and promote the esteem of the group and place greater restraints on individual expression, than in Western cultures, which tend to be more individualistic and allow for greater ease and tolerance of individual expression.

Dealing with Shyness

Although shyness is not considered a psychiatric disorder, the experience of shyness can create sufficient affective discomfort and problems in the personal lives of shy individuals that they will seek professional assistance to deal more effectively with their shyness. Approaches to helping shy individuals deal more effectively with their shyness also tend to reflect a "cultural fit" that focuses on cross-cultural differences between Eastern and Western cultures. Consistent with Eastern (i.e. Asian) values and social structure, Morita therapy, which is based in the Buddhist perspective, focuses on helping individuals to change their inner attitudes (e.g. others will discover publicly their faults) and behavioral expectations (e.g. behaving foolishly in public) to foster greater adjustment and effectiveness without altering the symptoms (e.g. acknowledging and accepting feelings of anxiety in social situations). Morita therapy emphasizes that shy individuals be more accepting of the symptoms of their shyness (e.g. It's OK. to have feelings of anxiety and uncertainty) and less critical of their actions (e.g. worry less about whether or not a joke was funny enough).

In Western cultures, the emphasis on independence and the self-expression through more direct communication and a greater tolerance of self-promotion raise concerns for developing a more valued interpersonal style characterized by extraversion. To deal with the affective component of shyness, progressive relaxation and biofeedback techniques focus on the reduction of bodily arousal to minimize the impact of anxiety during the execution of social behaviors. To deal with the cognitive component of shyness, cognitive-modification techniques attempt to revise self-perceptions, alter attributions, and adjust expectations for defining success while performing in social situations. To deal with the behavioral component of shyness, programs for promoting interpersonal exchanges focus on the acquisition and development of social skills such as strategies for approaching others, techniques for initiating and maintaining conversation, and procedures for entering on-going conversations. Structured clinical programs typically involve combining elements from all of the approaches, such as using cognitive modification to identify what situations produce the most critical self-evaluations and structured role-playing exercises within the context of systematic desensitization to reduce anxiety while teaching appropriate behavioral responses and building self-confidence in those situations. In the United States, an emerging controversy in the treatment of shyness is the medicalizaion of shyness by attempts to link it with more serious psychiatric conditions, such as social phobia, and emphasize its treatment by the use of prescription drugs including those based on selective serotonin reuptake inhibitors (SSRIs).

See Also

Anxiety
Extraversion
Social Anxiety and Social Anxiety Disorder

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16PF, Correlates of

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The 16 Personality Factor Questionnaire (16PF) is one of the most widely used measurement tools for assessing personality in non-clinical psychological and organizational domains, providing a thorough analysis of the entire range of personality factors. The scale has been developed over the past nine decades using a form of factor analysis termed parcel analysis, with each successive revision aiming to further validate and standardize the measure, alongside ensuring that the item content and scale interpretations are current. Cattell's main aim throughout this process was to identify and assess the rudimentary structural elements of personality. Furthermore, these factor analytic procedures provided evidence for his proposed multi-level, hierarchical model of personality, with a three-level model providing the best fit for analysis of the full range of personality traits (i.e. with 16 primary, five second-order and two third-order factors) in successively broader and conceptual terms. Specifically, interpretation of the primary factors enables the formation of a more detailed, precise, and unique personality profile, whereas assessment of the second-order or global five factors of personality results in a broader or more general view of one's personality. Nevertheless, there is only preliminary evidence postulating the presence of two third-order factors, denoting the most abstract assessment of personality and the highest level of the hierarchical model, hence the exact nature of these tertiary scales requires further research (Cattell & Mead, 2008).

Development and Structure of the 16PF

Cattell and colleagues developed the 16PF on the premise that all important, useful and interesting components of personality were already documented in language, thus rather than employing a theoretical standpoint for the basis of scale development and foundation, they systematically sampled and assessed all relevant terms in a large-scale factor analysis. They originally proposed 20 primary factors, however, four factors were very poorly defined and hence these were removed to provide a final solution that was easily interpreted, showed simple structure, and was consistently reproduced across varied samples from diverse

cultural, ethnic, educational and socio-economic groups. Furthermore, since the publication of the first edition in 1949 the scale has been translated and adapted into 35 languages through ongoing collaboration with researchers around the world (Cattell & Cattell, 2016).

The fifth and latest edition of the 16PF aimed to (1) refine and simplify item content and length, (2) reduce or avoid the presence of any biases associated with gender, disability, or ethnicity and of socially desirable and undesirable content (for use in organizational settings) and (3) increase factor loadings and interpretability. In contrast to previous versions of the measure, the latest revision only presented one form, persisting of items refined through a four-stage iterative process, from an item pool consisting of updated versions of the best items from the five forms of the fourth edition and newly formed items. The latest version appears to be more psychometrically sound than previous editions, improves hand scoring techniques and displays factor loadings, structure and psychological interpretations that align with the previous versions of the measure. The current version appears to display factor validity and good internal reliability (*median* = 0.75) and test–retest reliability over a two-week period (*median* = 0.80), despite critics noting that the authors' focus on criterion-related validity at the expense of internal consistency jeopardized the psychometric value of the study (Cattell & Cattell, 2016).

Similarly, prior respondents' concerns regarding the ambiguous nature of item-specific middle response options (i.e. varying across items) was addressed through the implementation of a standardized middle response. Specifically, the current version implements "?" as the middle response option, with the two extremes representing a positive and negative option for each trait. The items are scored 0 (negative option), 1 (?) and 2 (positive option). The use of successive integers to score the response options infers that the middle response represents an intermediate presence of the trait. Nevertheless, research has indicated that participants employ "?" to represent several disparate forms of responding which commonly contradict the inferred meaning of the response and result in category disordering or category threshold disordering (Murray, Booth, & Molenaar, 2015). Alternatively, respondents may employ the middle response to represent that they are "uncertain" or feel that the item is "not applicable" to them.

The fifth edition comprises 185 items, written at a fifth-grade reading level, investigating one's daily behavior, interests, and opinions. The questionnaire was developed for respondents aged 16 years or older. The scale scores are presented as stens, enabling easy interpretation of one's standing relative to normative data (with a standardization sample of over 10,000). Scores are provided on the 16 primary, five global personality and three response bias scales. All scales are bipolar, with both ends being coherently defined and providing meaningful descriptions. The bipolar operationalization of scales provides one important distinction between the 16PF and alternative measures of the five global factors of personality. Nevertheless, factor analyses employing various measures and models of these broad factors indicate that they tend to display comparable factor structures, providing parallel measures of the same underlying personality traits (please see Cattell & Mead, 2008, for more detail).

Primary and Secondary Traits

The following section describes each broad factor in turn, along with the primary factors that they encompass (e.g. Conn & Rieke, 1994).

Extraversion/Introversion

The extraversion/introversion scale provides an index to the degree to which one is socially oriented (extroverted) versus inhibited (introverted). This scale comprises five primary scales.

Warm-Reserved (A). The warm-reserved primary scale measures how friendly a participant is and how willing they are participate in social activities and contexts. High scorers are described as warm, caring, attentive to others and contributors in interpersonal settings. Low scorers are generally described as aloof, impersonal, distant, reserved and detached.

Lively-Serious (F). This scale indicates how expressive and cheerful one is compared to how introverted and serious. High scorers are described as lively, expressive, enthusiastic, animated, and cheerful, whereas low scorers tend to display restrained, cautious, serious, taciturn, silent and introspective characteristics.

Bold-Shy (H). The bold-shy scale displays the degree to which one is uninhibited and outgoing versus timid and shy. High scores indicate social boldness, venturous natures, while low scores signify threat-sensitive, timid personas.

Private-Forthright (N). This primary personality scale measures how forthright or private a person tends to be. High scores indicate private, discreet, astute, and diplomatic tendencies and low scores genuine, forthright, unpretentious, open and naïve tendencies.

Self-Reliant-Group Oriented (Q2). This scale signals how group oriented or self-sufficient an individual is. High scorers are often described as solitary, individualistic and resourceful, whereas low scorers are commonly considered followers, affiliative dependent, and group oriented.

High Anxiety/Low Anxiety

The global anxiety factor indexes how perturbable or unperturbable one is, encompassing four primary trait scales.

Emotionally Stable-Reactive (C). The primary emotionally stable-reactive personality factor measures how easily participants respond to stress and how emotionally liable they are. High scorers are seen as adaptive, emotionally stable, and mature, while low scorers are considered emotionally liable, affected by feelings and reactive.

Vigilant-Trusting (L). This scale signifies how vigilant or suspicious versus trusting and accepting one is around other people. High scorers are described as vigilant, skeptical, and wary. Low scorers are described as unsuspecting, trusting, accepting, and unconditional.

Apprehensive-Self-Assured (O). Apprehensive-self-assured displays the level to which someone is more self-confident versus insecure. High scorers tend to be described as worried, self-doubting, guilt prone, insecure and self-blaming. Conversely, low scorers are often seen to be complacent, confident, self-assured and secure.

Tense-Relaxed (Q4). This factor provides a measure of how time driven and patient respondents are. High scorers are commonly driven, tense, impatient, frustrated and full of energy. Low scorers tend to be relaxed, patient, placid, tranquil and composed.

Tough-Mindedness/Receptivity

The global trait of tough-mindedness/receptivity signifies how resolute and tough-minded someone is compared to how intuitive, open-minded, and receptive they are. The scale comprises four primary traits.

Warm-Reserved (A). Please see the description provided above.

Sensitive-Unsentimental (I). The sensitive-unsentimental dimension denotes whether someone is compassionate and sympathetic or objective. High scorers are described as refined, tender-minded, sympathetic, sentimental, and esthetic, whereas low scorers are described as objective, tough, self-reliant, and utilitarian.

Abstracted-Practical (M). Abstracted-practical indicates whether someone is impractical and imaginative or practical and solution oriented. High scorers are frequently considered abstract minded, impractical, and imaginative and low scorers grounded, down-to-earth, conventional, practical, and prosaic.

Open-to-Change/Traditional (Q1). The primary personality factor of open-to-change-traditional depicts how flexible or liberal someone is compared to how conservative they are. High scorers tend to be open to change and experimentation, while low scorers are often traditional and conservative, being attached to familiar ideas and values.

Independence/Accommodation

The broad scale of independence/accommodation measures whether an individual tends to be persuasive, independent and willful, or agreeable, selfless and accommodating. It is represented by four primary traits, including the aforementioned *bold-shy, vigilant-trusting* and *open-to-change/traditional* scales and:

Dominant-Deferential (E). Gauges how co-operative, assertive and dominant participants generally are. High scorers are frequently described as being forceful, assertive, dominant, competitive and stubborn. In comparison, low scorers are considered submissive, humble, obedient, co-operative and deferential.

Self-Control/Lack of Constraint

This scale denotes the degree to which a person is self-controlled and restrained, alongside whether or not they tend to inhibit urges. Please refer to the abovementioned descriptions of *lively-serious* and *abstracted-practical* as they form two of the four factors loading on this global scale. The remaining primary factors loading on this global scale are:

Rule-Conscious/Expedient (G). A primary personality measure that conveys how likely one is to abide by the law and attitudes toward authority figures. High scorers are often described as conforming, moralistic, dutiful, conscientious and rule-bound. Low scorers are considered non-conforming, expedient and self-indulgent.

Perfectionistic-Tolerates Disorder (Q3). A primary scale ascertains the degree to which one is self-disciplined as opposed to impulsive. High scorers are frequently described as being perfectionists, self-disciplined, organized, in control, and compulsive, whereas low scorers are commonly considered flexible, unexacting, undisciplined, impulsive, lax, and uncontrolled.

Reasoning (B)

This primary factor is the only scale within the 16PF that relies on ability or objective based measurement techniques (consisting of correct and incorrect responses). The scale encompasses 15 items that do not load on the five global factors. High scorers on this factor tend to be bright and fast learners, while low scorers tend to display concrete thinking and a lower mental capacity.

Applications in Personality Profiling and Correlates of the 16PF

The most frequent and established application of the 16PF is within industrial and organizational settings, reflecting the strong predictive validity of the scale (i.e. in predicting and understanding important behaviors). Multiple personality profiles for varied professions have been formulated and subsequently utilized to inform employee selection, promotion, and development in the workforce. Please see Cattell and Mead (2008) for an in-depth review.

The scale is also commonly used in research and clinical settings to identify personality correlates with important psychological and social variables, such as self-esteem, happiness, intelligence, masculinity and femininity and attitudes in order to inform treatment, research, and developmental programs (please refer to the further reading list below).

See Also

Androgyny, Expression of
Behavioral Inhibition/Activation, Personality Correlates of
Factor Analysis in Personality Research
Individual Differences and Sleep Disorders
Judgments of Personality
Raymond B. Cattell
Sixteen Personality Factor Questionnaire (16PF)
Trustworthiness

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Social Desirability

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What is Social Desirability?

Researchers across multiple disciplines, most commonly the social sciences, rely on self-report methods to ask direct questions and draw meaningful conclusions. Such methods include rating scales, interviews, and questionnaires, which are used to elicit information about individual behaviors, personality, motivation, beliefs, and so on. Under ideal circumstances, responses garnered through self-report methods emerge from truthful and/or accurate respondent answers, and particularly those which the self-report method aims to test. However, the validity of self-report methods is sometimes difficult to recognize due to response styles, or response bias. They are not often controlled in research. Vaerenbergh and Thomas (2013) define response styles as the tendency for respondents to answer survey questions or rating scales in certain ways, regardless of the content. As a form of response bias, response styles contribute to systematic error through alternative explanations for research results.

Social desirability, which is the focus of this article, is one type of response style in which respondents present themselves in ways that conform to socially acceptable values and expectations; yield social approval; and/or avert criticism. Social desirability was initially conceptualized as a unidimensional construct. In response, instruments were developed to measure individual differences in social desirability, but low correlations between those scales redirected conceptualizations of social desirability to be associated with two factors of awareness: self-deception and other deception. Self-deception occurs when a survey respondent truly believes a statement to be true of themselves, even though it is untrue. Other deception is the case when a respondent misrepresents the truth in order to avoid being evaluated. Alternatively and more recently, Paulhus and John (1998) categorized socially desirable response tendencies as two modes of human experience: agency and communion. According to the researchers, some respondents would be more likely to provide socially desirable responses in agency-related contexts. Those fall under conditions where respondents are asked questions that elicit egoistic response tendencies (ERT),

which involve such aspects as independence, assertiveness, dominance, uniqueness, mastery, and influence. Other respondents, on the other hand, are more likely to provide socially desirable responses in communion-related contexts, which involve love, intimacy, belonging, connectedness, approval, and nurturing behavior. Paulus and John referred to these types of socially desirable response domains as moralistic response tendencies (MRT). With regard to individual differences in socially desirable responses, gender is a socio-demographic variable that has been repeatedly examined in the context of ERT and MRT. Differences may be explained by traditional, gender-based socialization roles, wherein men consistently score higher on ERT than women. Research has also consistently shown that women score higher on MRT than men. This is according to research by Lawlani, Shavitt, and Johnson in 2006.

The concept of social desirability first came to prominence through the works of Allen L. Edwards (1953, 1957), under the context of personality characteristics and assessment. Academics like Jackson and Messicks (1958) explored social desirability as a type of response style. Both contexts contribute to a strong working definition of social desirability, which is worthy of study due to its relevance in survey design, market research, personality research, and in the social sciences in general, and especially due to its status as one of the most common sources of bias affecting the validity of experimental and survey research findings. Respondents of self-reports are commonly swayed by social desirability in questions that address socially sensitive or personally private issues. When faced with such issues, respondents might provide responses that are either exaggerated or inflated, underplayed or deflated, or completely denied. A study on physical activity levels by Adams et al. (2005), for example, found that participants with high social desirability scores were significantly more likely to overestimate their physical activity levels. Self-report themes in which social desirability is a concern include:

- health and physical behaviors (e.g. dietary intake, exercise, sexual practices, compliance with medicine dose prescription);
- personal habits (e.g. work ethic, spending habits);
- personality/temperament (e.g. honesty, humor, aggressiveness);
- social activities (e.g. religious beliefs, charitable actions, patriotism); and
- societal taboos (e.g. participation in illegal activities, domestic violence).

Studies have demonstrated that social desirability can bias laboratory- and survey-based research. One classic study by Nederhof (1985) reported that 10–75% of the variance in responses can be explained by social desirability, which can confound relationships among variables of research interest. In many instances, social desirability obscures or suppresses relationships among variables in ways that produce artificial relationships among or between variables. On the other hand, the impacts of social desirability can sometimes be minor. A study by Klassen and colleagues (1976) identified an effect that was pervasive, but lacking social desirability, with the highest correlation making up only 10% of the variance. The differences in results are expected when considering the significance of environmental influences and sample type on social desirability, as well as the self-report themes of focus. However, meta-analyses suggest that social desirability is the same between paper and online self-report methods, as well as those administered in person.

Ways to Overcome Social Desirability

Detection and Measurement

Researchers in the fields of psychology and sociology have developed and validated a variety of control methods to detect and measure data that is systematically biased by socially accepted responses. Most notably, the 33-item Crowne-Marlowe Scale (CMS; Crowne and Marlowe, 1964) measures individual differences in the tendency to give socially desirable responses. Conveniently, respondents are given the CMS questionnaire, along with the questionnaire of focus. They are asked to answer true or false questions to a set of socially desirable, but improbable statements, like "Before voting, I thoroughly investigate the qualifications of all candidates." Items in the questionnaire of focus that are strongly influenced by social desirability will correlate substantially with the respondent's scores on the CMS. However, items not strongly affected by social desirability will correlate minutely with the CMS. The CMS has been translated into several languages (e.g. Hermans, 1967). It has also undergone a multitude of examinations by other academics, including Millham (1974) and Ramanaiah and Martin (1980), to test its validity and to critique its methodological flaws (e.g. Edwards, 1970; Millham and Jacobson, 1978). Another commonly used index for detecting social desirable responses is the Balanced Inventory of Desirable Responding (BIDR; Paulhus, 1998), which is viewed by some researchers as more sensitive than the CMS due to its incorporation of newer theoretical and empirical understandings of social desirability and more sophistical multivariate techniques. It measures a respondent's tendency to give socially desirable responses on self-report inventories, consisting of 40 items on 7-point scales (1 = Not true to 7 = Totally agree) or 5-point scales (1 = Not true to 5 = Very true). The BIDR measures respondent tendency to unconsciously give unrealistically favorable self-descriptions and consciously dissimulate or "fake good." Consistent with previous research, a study by Lambert et al. (2016) showed that both the CMS and the BIDR have substantial ability to detect social desirability in self-reports.

Reliable short form versions of the CMS have also been developed by such researchers as Loo and Thorpe (2010), Fischer and Fick (1993), Ballard (1992), Zook and Sipps (1985), Silverstein (1983), Reynolds (1982), Nederhof (1981), and Strahan and Gerbasi (1972). The use of such scales provides three ways of coping with social desirability, including the questionable, yet sometimes used method of rejecting of high-scoring data. As well, users of social desirability scales can correct data of high social desirability scorers by adjusting them according to control group or neutral task data, or by merely registering the impact of social desirability as a study limitation.

Prevention and Reduction

Researchers utilize general principles to prevent and reduce socially desirable responses when developing test items. Such methods are useful for making sure that an item assesses only the trait that it is designed to measure and are approached through management of the situations in which data collection takes place. Naturally, creativity and reliability of all solutions are subjected to critique. For example, items can be written such that responses fall under competing social desirability. This is the case in forced-choice items as a method

of coping with social desirability (Edwards, 1957, 1970). Respondents are made to choose between two items that possess an equal amount of social desirability with the rationale that if both items seem equally desirable, the respondent choice is not influenced by social desirability. An example presented in the Preference Record of Kuder (1939) is, "Take a photograph of a table you would like to make" or "Take a photograph of a champion swimmer."

Alternatively, items on personality questions can be devoid of highly socially desirable features. Indirect or neutral questioning techniques elicit answers from the perspective of another person or group, rather than the respondent's own perspective. They are useful for framing embarrassing questions or those that may project an unfavorable image of the respondent. Fisher (1993) has reported that indirect questioning reduces social desirability bias and has no additional systematic effects on mean scores. This method is pervasive in marketing and consumer behavior research.

Use of self-administered questionnaires isolates the respondent as a way of potentially reducing the salience of social cues. In other words, this method ensures respondent anonymity through the absence of an interviewer. While some studies have found that anonymous mail and online surveys yield data that is less influenced by social desirability than telephone or face-to-face interviews, other studies contest that there are no differences in distortion of answers between varying methods of administration.

Overall, combining methods for detecting, measuring, preventing, and reducing social desirability can contribute to experimental and survey research data that is valid. Social desirability represents only one type of response that is overcome through combinations of measurement instruments and research practices that are used for detection and prevention in research and clinical contexts. Their use will certainly continue to be enhanced in the future.

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Social Intelligence

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The term "social intelligence" (SI) was first noted by Thorndike (1920) as a meaningful component of a person's intelligence. But the appreciation of the need for interpersonal ability dates far back from the era of modern psychology. Aristotle (352 BCE) noted, "Man is by nature a social animal; an individual who is unsocial naturally and not accidentally is either beneath our notice or more than human. Society is something that precedes the individual. Anyone who either cannot lead the common life or is so self-sufficient as not to need to, and therefore does not partake of society, is either a beast or a god." On the other side of the world, a little earlier, Confucius discussed the importance of building and honoring relationships to others. In *The Analects,* he said that the basic concept of benevolence, which he called ren, was that a person "wishing to be established himself, seeks also to establish others; wishing to be enlarged himself, he seeks also to enlarge others" (Confucius, 1979, originally fifth century BCE). In more recent periods, a person's ability to build and maintain relationships, to work, live and love with others has evolved. Gardner (1983) considered interpersonal intelligence one of the seven forms of intelligence a person has.

While definitions will vary, SI is a set of abilities that enable a person to build and maintain healthy relationships, whether in dyads, teams, or large groups. Most simply, it is the ability to live, love, and work with others. In terms of behavior, Boyatzis (2009) defined "a social intelligence competency is the ability to recognize, understand and use emotional information about others that leads to or causes effective or superior performance." For a comprehensive review of SI, see Cantor and Kihlstrom (1987) and Goleman (2006).

SI has been shown to predict effective leadership, management, and professional performance (Boyatzis, 2009; Cantor & Kihlstrom, 1987). It has also been shown to predict loving and stable marriages (Gottman, Murray, Swanson, Tyson, & Swanson, 2002) and relationships in general. Life satisfaction is more likely a function of one's social networks and relationships, and even physical health throughout the age spectrum is linked to the quality of one's active relationships (Putnam, 2000). The quality of one's social relationships

and interactions has even been claimed to delay onset of cognitive decay resulting from neuro-degenerative disorders (Petersen et al., 2015).

Multiple Levels of Social Intelligence

Recognizing that our social abilities take on many forms helps avoid the trap of arguing one variable as the essential component and appreciating that SI exists at multiple levels within a person (McClelland, 1951; Boyatzis, 1982 cf. in Boyatzis, 2009). There are neural networks that enable a person to "see" and notice others, to attend to them, and others that inhibit that ability. These operate unconsciously and quite fast (33 ms to recognize a face). Then moving slightly closer to consciousness, we have personality traits, like agreeableness or empathic concern, and motives, like the needs for affiliation and power, also unconscious. Still rising closer to consciousness are the levels of values and attitudes, which McClelland called the self-schema (1951). Somewhere between consciousness and just below the level of consciousness, exists the knowledge about SI (Cantor & Kihlstrom, 1987). Moving into full consciousness is the behavioral level, that which can be seen by others, which can include skills, like listening, or competencies, like influence (Boyatzis, 2009; McClelland, 1973). All of these components integrate into a person's SI. It is assumed that SI at one level will affect the existence and activation of SI at another level. Some research has explored these interactions, but the research documentation is sparse because of the epistemological silos in which many scholars work.

When used appropriately, measures of SI or its components should reflect the specific level of SI being studied. For example, the assessment of the default mode network activation requires an fMRI or similar method. Assessment of a performance trait such as empathy would require a measure like the Profile of Nonverbal Sensitivity (PONS; Rosenthal, Hall, DiMatteo, Rogers, & Archer, 1979). The motive level is assessed through a Thematic Apperception Test (TAT), and for more value based definitions of motives, there may be self-report surveys to assess it. The behavioral level of SI, called SI competencies, is assessed best through informants' observations from multi-source analysis like a 360 assessment, or coding of audio or video tapes of critical incidents or simulations (Boyatzis, 2009).

Neural Networks and Too Little or Too Much SI

Although many parts of the brain are involved in social interaction, one major network, the default mode network (DMN), is particularly important for SI. This is the network that enables a person to notice and focus on others, as well as emotions and moral concerns, and new ideas. Kahneman (2011) called this the fast system in his dual process theory. The challenge is that tasks involving analysis, numbers, and abstractions, like decision-making and problem-solving, activate another dominant network called the task positive network (TPN). While both are important at work and in life, they suppress each other (Jack et al., 2013). Spending a great deal of time in work environments that focus on budgets and analysis will make it more difficult for a person to develop or use SI (Boyatzis, Rochford, & Jack, 2014).

Too little demonstrated SI will emerge as dysfunctions that include autism, which is, to simplify it, a difficulty accessing the DMN among other things. Abrasive personality syndrome is often a result of poor SI. This is often seen as the major contributor to why 70% of people in full-time work in the United States do not feel engaged in their work. Although emotional intelligence has received a great deal of attention, it is the relative lack of SI that is the likely culprit in poor performance at work and in family disruptions.

Can SI Be Developed?

The answer to the age-old question as to nature or nurture, SI can be developed. This does not mean that some aspects are not present at birth, for example agreeableness seems to have some genetic basis. Longitudinal research has documented the development of the behavioral level of the SI competencies (Cherniss & Adler, 2000; Boyatzis, Stubbs, & Taylor, 2002) in adults. Development of SI in children has also been documented in multiple studies using an approach called "socio-emotional learning" (Durlak, Weissberg, Dymnicki, Taylor & Schellinger, 2011).

See Also

Emotional Intelligence
Emotional Intelligence, Correlates of
Emotional Intelligence in the Workplace
Motivation (Achievement, Affiliation, Power)
Personality and Well-Being

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Temperament, Personality Correlates of

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Temperament Conceptualized

Temperament is the totality of the biologically based psychological individual differences that are expressed and detectable early in life. The fact that these differences can be observed in newborn infants, at an early stage when the social environment could not have played a substantive role, suggests important genetic and prenatal environment influences. With time, the variation in behavior of infants continues to be heavily influenced by biological factors, and cross-situational consistency and temporal stability increase. By the age of 3, temperamental traits show some stability but these are basic and simple psychological systems (e.g. emotional reactivity, activity level, and affiliation) that have not yet developed into more complex cognitive systems seen later in childhood. With development of motivational, attention, and cognitive systems come individual differences in self-regulation abilities. Further development also leads to more advanced self-regulation systems based on capabilities to imagine future goals.

A trait can be said to represent a continuum with bipolar opposites. Taking the example of the trait extraversion, we can describe the bipolar opposites as extraverted and introverted. Cross situational consistency and temporal stability (at least over medium-term periods of a few years) are the basic features of personality or temperament traits that make it possible to identify and differentiate individuals from each other and to be able to say, "I know this person." Thus a person who is described as extraverted will have a tendency to be extraverted consistently across various situations (e.g. at work, in intimate relationships, and in daily interactions with people) and will tend to maintain that pattern of behavior over a period of years or even decades.

Research on Temperament

Some Early Beginnings in Temperament Typology

Of particular interest to the modern study of temperament is the contrast between personality traits and personality types. In general, personality types refer to categorical distinctions used to classify objects, animals, or people. One early typology of temperament consists of the fourfold classification of the bodily humors consisting of blood, phlegm, black bile, and yellow bile proposed by the second-century Greek physician Galen. A specific temperament was associated according to which of these fluids were in higher concentration in the body as follows: sanguine (warm), phlegmatic (apathetic), melancholic (sad) and choleric (easily angered). Another typology initially proposed by Ernst Kretschmer in 1925 and developed further by William Sheldon in the 1940s linked specific body types to temperament patterns. These body types – endomorphic (soft, rounded), mesomorphic (hard, rectangular, muscular), and ectomorphic (thin, fragile) – were linked to temperaments of easy going, dominant/aggressive, and introverted/private respectively. Essentially no empirical evidence has supported these early typologies. Modern research on temperament focuses more heavily on trait models of variation, hypothesizing that for most traits, individuals vary along a continuum showing a nearly normal distribution.

Criteria for Thinking About Temperament

Buss and Plomin (1984) proposed five criteria to provide evidence that a trait falls within the domain of temperament: the trait is (1) inherited, (2) relatively stable during childhood, (3) retained into adulthood, (4) evolutionarily adaptive, and (5) present in our phylogenetic relatives. Research over the years has indeed produced evidence satisfying these criteria within the areas of behavioral and molecular genetics, child development psychology, child to adulthood longitudinal research, evolutionary psychology, and temperament studies in non-human animals. In addition to these five criteria, psychobiological models of temperament have also been developed, and cross-cultural research has supported the universality of specific temperamental traits across cultures.

Behavioral Genetics and Molecular Genetics

Temperament is influenced by genes, environment, experience, and maturation. The study of behavioral genetics has demonstrated through various twin research paradigms that heredity plays a significant role in temperament. Another important finding is that of a gene–environment correlation, whereby genetic and environmental influences on temperament and behavior are not independent. For example, a child's initial temperament can influence the responses he or she evokes from parents. The parents' responses in turn influence the child's later temperament and related behaviors. Environments are also selected based on temperament. A child who is introverted will be likely to seek quiet environments.

Molecular genetic studies have investigated the influence of specific genes on specific psychological outcomes related to temperament such as aggression and depression. Some studies have also found evidence of trait by environment interactions. In some cases, these

interactions suggest that the influence of the gene manifests itself only under specific environmental influences. For example, in one seminal study Caspi et al. (2003) found that the exposure to stressful life events influenced the likelihood of developing depressive symptoms, but only among individuals with one or two copies of the 5-HTTLPR short allele. These interaction effects are small and are difficult to detect with small sample studies.

Temperament in Early Life

Alexander Thomas and Stella Chess, two psychiatrists, conducted pioneering work on temperament in infancy, beginning in the 1956 New York Longitudinal Study (Thomas & Chess, 1977). They studied individual differences in primary reaction patterns in infants (beginning at 3 to 6 months of age) by interviewing parents about their infants' behavior in varying contexts. Their observations and assessments were summarized along nine dimensions of temperament: regularity or rhythmicity of behavior, adaptability to changes in the environment, approach and withdrawal in responses to novelty, threshold of responsiveness (i.e. amount of stimulation necessary to produce a reaction), intensity of reaction, quality of mood based on the amount of positive and negative feelings, distractibility based on the effectiveness of external stimuli to capture the child's attention, and attention span and task persistence. Mary K. Rothbart, an influential researcher in child temperament, has suggested that the structure of temperament in childhood consists of three broad dimensions: Negative Affect, Surgency, and Effortful Control. The more basic domain of reactivity underlies the dimension of negative affect and surgency, while effortful control refers to a major process of self-regulation.

Long-Term Longitudinal Research

Consistency and stability in temperament from infancy to adulthood, and the structure of temperamental traits present early in life, converge with the structure of personality traits in adulthood. Individual differences in childhood temperament have been shown to predict, to some extent, adult outcomes including adult personality traits, psychopathology, and school achievement. A number of studies have investigated the stability of temperament from childhood to adulthood and found some evidence of stability. For example, in a longitudinal study of 1,000 children born in Dunedin, New Zealand, Caspi et al. (2003) assessed their temperament at age 3 and personality traits at age 26. These longitudinal studies have revealed that impulsivity in childhood predicts problems in adolescence and adulthood (e.g. suicide risk, hostility, crime, substance dependence, psychopathy, narcissism, and executive functions). Also, high reactivity and irritability at 4 months, shyness at 20 months, and inhibition at 3 years predicted anxiety, shyness, and depression in adolescence and adulthood. Other longitudinal studies have found similar patterns. Taken collectively, the long-term studies indicate that two traits appearing in infancy and toddlerhood, impulsivity/inattention and behavioral inhibition, are predictive of outcomes in adolescence and adulthood. At the same time, it is important to note that temporal stability does not mean that people do not change but that they maintain a similar rank order position across time. For example, the child in kindergarten that was ranked the highest in extraversion would be somewhat likely to rank among the highest at a class reunion 20 years later.

Evolutionary Psychology

Temperament dimensions of affect, action, and attention may be seen as adaptive mechanisms designed throughout our evolutionary history. A number of reasons have been suggested for why genotypic and phenotypic variation exists in these dimensions and manifest themselves as individual differences in temperament (Ashton, 2013). One idea is that both ends of any of the basic temperamental dimensions, such as extraversion and introversion, were selected because the net benefits of one pole did not consistently outweigh those of the opposite pole. The overall advantage of having higher or lower levels of a trait would have depended on various environmental circumstances. Another proposed idea known as frequency dependence suggests that there might be an ideal balance of people with different levels of a temperament dimension.

Temperament in Non-human Animals

If temperament is biologically based, then temperament traits should also exist in non-human animals. Numerous studies have found evidence of this hypothesis in species such as chimpanzees, cats, dogs, donkeys, hyenas, and octopuses. In their review of animal studies that included 12 non-human species, Gosling and John (1999) found evidence that individual difference variation in behavior could be organized along dimensions that resembled the human five factor model dimensions of extraversion, neuroticism, and agreeableness. There was some evidence of openness to experience but mostly with respect to curiosity and not to more advanced activities including use of symbols. Evidence of conscientiousness was limited to chimpanzees who showed some primitive forms of organization and planning. These similarities across a wide range of animal species provide evidence of underlying biological mechanisms.

Psychobiological Models of Temperament

Hans Eysenck and later Jeffrey Gray posited neurobiological models for temperament. Eysenck proposed that the dimension of extraversion was associated with variability in cortical arousal, and that the dimension of neuroticism was associated with individual differences in the limbic system. Gray proposed a behavioral activation system (or BAS) and a behavioral inhibition system (or BIS) as the basic dimensions of temperament. These are broad systems that incorporate more specific traits. For example, dispositions in sensation seeking, impulsivity, and aggression fall within the domain of the activation system, whose function in evolutionary history has been to motivate approach behaviors toward sources of rewards. This system is associated with brain dopaminergic reward-seeking mechanisms. The BIS has an opposite role of avoiding and withdrawing from threats in the environment and involves fear and anxiety responses.

Future Research Directions

Research in temperament will continue in all directions described above, bridging gaps and advancing knowledge in the relations between genetic, brain, and psychological elements.

Technological advances will lead to more precise and feasible measurement at the genetic and neurophysiological level, and will also lead to larger information processing algorithms for modeling evolutionary mechanisms and gene-by-environment processes. The fact that temperament traits associated with risks of later problem behaviors can be assessed as early as the second year of life provides valuable directions for prevention of social and health-related problems such as addiction and crime. In fact, although most prevention work occurs with children of school age, more and more assessments will be conducted in pre-school especially for the early detection of externalizing behaviors. Another research direction involves the relation between temperament and pharmacotherapy. Initial research has revealed that people may respond differentially to drug treatments such as antidepressants due to differences in the neuroaffective bases of their personalities. Overall it will be important to bridge temperament research in biological psychiatry, psychopharmacology, clinical psychology, and developmental psychopathology.

See also

Behavioral Genetics
Behavioral Genetics, General Features and Methodological Issues
Personality Development
Temperament, Theory of

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Test Anxiety

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Societal and Cultural Context

The long-standing academic and public interest in test anxiety is largely due to the increasing personal salience of evaluative situations for people in modern society (Zeidner, 1998). Myriad forms of tests, evaluation procedures, and assessments are now used widely by education practitioners, clinicians and the industrial, government, and military sectors to diagnose, assess, and help make decisions about people. Many persons have the ability to do well on exams but perform poorly on cognitive tests due to debilitating levels of test anxiety. Consequently, test anxiety may limit educational and vocational development because test scores influence entrance to many educational or vocational training programs in modern society.

Testing of school-age children and youth in the United States has continued to increase over the past few years. This trend is primarily due to an emphasis on the accountability of schools to increase their students' achievements following the *No Child Left Behind* legislation of 2001. This has resulted in increased pressure on school students to succeed, and potentially increasing levels of stress and evaluative anxiety in student populations.

Recent examinations of the prevalence for test anxiety in Western society suggest estimates close to 25–40% of the population. In addition, test anxiety is a near-universal phenomenon, experienced by people in different cultures across the globe. Meta-analytic data from various national sites show that although mean test anxiety levels vary somewhat across cultures, test anxiety is a prevalent and relatively homogenous cross-cultural phenomenon. Whereas women report higher levels of test anxiety than men, the gender difference generally does not translate into objective performance differences.

Definition and Conceptualization

Test anxiety refers to the set of phenomenological, physiological, and behavioral responses that accompany concern about possible negative consequences or failure on an exam or similar evaluative situation (Zeidner, 1998). Test anxious students have been reported to manifest a host of deficits in information processing during encoding, processing, and retrieval of information. Also, during assessment sessions, test anxious students are reported to suffer from heightened emotional arousal, and worry excessively about exam failure. In addition, many test anxious students are also reported to experience deficits in study skills and test taking, with poor preparation a major catalyst for anxiety in evaluative situations (Zeidner, 1998).

Researchers have found it useful to differentiate between three related facets of test anxiety: a *cognitive* facet (worry, irrelevant thinking, etc.), an *affective* facet (tension, perceived arousal), and a *behavioral* facet (deficient study skills, procrastination, avoidance behaviors, etc.). In any given test situation, test anxious subjects may experience all, some, or none of these test anxiety reactions. The specific anxiety response manifested may vary, depending on the constitutional qualities and past experience of the individual, the nature of the problem to be solved, and various situational factors affecting the level of anxiety evoked.

The test anxiety construct was dramatically advanced by a number of important conceptual distinctions, which helped refine thinking and research in the area. Alpert and Haber differentiated *facilitating* and *debilitating* anxiety, with facilitating and debilitating anxiety, respectively, claimed to lead to task-related and task-irrelevant behaviors during test situations. Yet another conceptual contribution, advanced by Liebert and Morris, was the critical differentiation between *worry* and *emotionality* components of test anxiety. According to this conceptualization, anxiety was viewed to be a bi-dimensional phenomenon, including cognitive (Worry) and affective (Emotionality) components. These two components are revealed to be empirically distinct, though correlated, and worry relates more strongly to test performance than does emotionality. This distinction proved to be instrumental in shifting test anxiety research toward a more cognitive orientation.

Although the question still looms large whether test anxiety is best conceptualized as a relatively stable personality trait (individual difference variable) or an ephemeral emotional state, a widely accepted conceptualization proposed by Charles Spielberger (1995) proposed a hybrid term by construing test anxiety as a *situation-specific personality trait*. Accordingly, test anxiety refers to the individual's disposition to react with extensive worry, intrusive thoughts, mental disorganization, tension, and physiological arousal when exposed to evaluative situations.

Past and Current Conceptions

Throughout its relatively brief history as a scientific construct, test anxiety has taken on a variety of different meanings as a function of both changes in the "Zeitgeist" coupled with variations in the theoretical persuasions of the individual investigators involved in this research arena. Thus, in the early days of test anxiety research, the construct was initially defined in *motivational* terms, either as drive level, goal interruption, or need to avoid failure. With increasing interest in personality research, test anxiety was conceptualized as

a relatively stable *personality disposition* that develops when parents hold exaggerated expectations and are overcritical of their children's achievement efforts. In keeping with the cognitive revolution of the late 1960s and early 1970s, test anxiety came to be viewed primarily as a *cognitive-attentional* phenomenon. Accordingly, the highly anxious person is one who attends, in an exaggerated way, to evaluative cues, to self-generated concern about ability to do well enough, and to feelings of physiological arousal.

More recently, Zeidner and Matthews (2005) have emphasized the distinction between test anxiety as an attribute of the person, and as a dynamic process. From the first perspective, dispositional test anxiety may be construed as a *contextualized personality trait*, referring to the individual's disposition to react with extensive worry, intrusive thoughts, mental disorganization, tension, and physiological arousal when exposed to evaluative contexts or situations. The more transient state expressions of anxiety may be assessed separately from the more stable trait. From the second, process-oriented perspective, test anxiety depends on the reciprocal interaction of a number of distinct elements at play in the ongoing stressful encounter between a person and an evaluative situation. These elements include the evaluative context, individual differences in vulnerability (trait anxiety), threat perceptions, appraisals, and reappraisals, state anxiety, coping patterns, and adaptive outcomes.

Assessments

Self-reports include any direct subjective report by the person regarding his or her own test anxiety responses, usually elicited via questionnaires or single-item rating scales. Self-report inventories have been the most prevalent format for assessing test anxiety, largely because they are considered to provide the most direct access to a person's subjective experiential states in evaluative situations, possess good psychometric properties, are relatively inexpensive to produce, and are simple to administer, score, and interpret.

Among the most widespread contemporary measures of test anxiety are Spielberger's Test Anxiety Inventory, Sarason's Reactions to Tests, Suinn's Test Anxiety Behavior Scale and Benson et al.'s Revised Test Anxiety Scale. Most popular test anxiety inventories have satisfactory reliability coefficients, typically in the high .80s to low .90s. During longer intervals between assessments, personality traits, such as test anxiety, may change, causing lower stability coefficients. Scores on ability tests, grade point average, observer ratings, behavior in structured evaluative situations, and the like have been employed as measures of criterion behaviors.

A variety of less frequently used assessments have been employed to assess anxiety, including "think-aloud" procedures (e.g. "Please list as many thoughts and feelings as you can recall having during this test"), physiological measures designed to gauge changes in somatic activity believed to accompany test anxiety (e.g. pulse, heart rate, respiration rate, skin resistance level), trace measures (e.g. accretion levels of corticosteroids, adrenaline products, urea glucose), performance measures (e.g. examination scores, semester grade point averages, latency and errors in recall of stress-relevant stimulus materials), and unobtrusive observations of specific behaviors reflective of test anxiety in a test situation (perspiration, excessive body movement, chewing on nails or pencil, hand wringing, "fidgety" trunk movements, and inappropriate laughter when subjects were engaged in exam situations).

Anxiety assessments need to be understood within the context of a student's life and social and cultural milieu. Thus, understanding the results of a score on an anxiety measure requires appreciation of the possible multiple and interactional influences on anxiety. This includes the subject's past affective and academic history, and current social, emotional, vocational, and economic adjustments, as well as behavior during the exam.

Anxiety and Cognitive Performance

Hundreds of studies have probed the pattern of relationships between anxiety and a wide array of cognitive performances. A meta-analytic review by Hembree (1988), based on 562 North American studies, demonstrated that evaluative anxiety correlated negatively, though modestly, with a wide array of conventional measures of school achievement and ability at both high-school and college levels. On average, the mean effect of test anxiety on depressing student test scores was about a fifth of a standard deviation. Other integrative reviews by Seipp and Ackerman revealed similar effects.

The information-processing components found to be sensitive to anxiety in lab experiments relate to encoding, information storing and processing, and information retrieval and production. These anxiety-related deficits at various stages of processing suggest some general impairment in attention and/or working memory.

Interventions

Test anxiety treatment fashions and orientations mirror the evolution of the behavior therapies, having swayed sharply from the psychodynamic to the behavioral, and more recently to the cognitive perspective. Most intervention methods are embedded in a multidimensional context. At present, a combination of procedures (whether combined in a truly integrative manner or in the stance of technical eclecticism) seems to best represent the true nature of the test anxiety intervention process.

Current attempts have typically focused on treatments directed toward the emotional, cognitive, or behavioral facets of anxiety. Thus, treatment programs typically include *emotion-focused* treatments, designed largely to alleviate negative emotional affect experienced by anxious students, *cognitive-focused*, treatments designed to help the anxious client cope with worry and task-irrelevant thinking, and *skills training*, designed to improve various skills among students (social, athletic, motor, study, test-taking skills) and enhance their performance. A number of meta-analyses have pointed to the effectiveness of the treatment of anxiety among school children, with mean effect sizes estimated around two-thirds of a standard deviation unit.

Directions for Future Research

Although anxiety research over the past 65 years or so has made important strides in mapping out the anxiety terrain, there is still much uncharted territory that needs to be explored and more extensively mapped out by future research (see Zeidner, 2014). This includes:

- Development of a comprehensive taxonomy of anxious students;
- Research addressing different grain sizes and levels of discourse with respect to anxiety in students (biological, programming, and knowledge levels);
- Pinpointing neural mechanisms accounting for the anxiety phenomenon and its key manifestations;
- Large-scale and systematic research relating to various facets of anxiety, based on multiple observations of various student target groups, at various time points, and in various educational and social contexts and cultural settings;
- Empirical research in natural evaluative settings;
- Detailing how anxiety influences the more complex processing competencies that are often important in real-life settings (decision making, inductive and deductive processes, creative behavior).

See Also

Anxiety
Anxiety, Assessment of
Social Anxiety and Social Anxiety Disorder

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Trauma

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Trauma is a result of an internal or external event that stimulates the mind to an unbearable degree. It can be a result of natural disasters, individual violence, and/or socially organized perpetration, which may have grave consequences for somatic and mental health. It is also socially relevant, because long-lasting post-traumatic disorders put a serious burden on the health system. From a sociological perspective, specific social traumatic experiences, if culturally acknowledged, sometimes serve as a key narrative for social identity.

It is important to emphasize that not every trauma exposure leads to a post-traumatic symptomatology. An overall rate of post-traumatic stress disorder (PTSD) was found to be 15.9% in children and adolescents following trauma exposure, varying from 8.4% in boys exposed to non-interpersonal trauma to 32.9% in girls exposed to interpersonal trauma (Alisic et al., 2014).

Trauma was a very important topic of nineteenth-century French and German medicine. It came to prominence with Sigmund Freud and was much studied by psychoanalysts. Kaplan's widely used "Synopsis of Psychiatry" has up to the 1980 edition relied on a 1955 study that had claimed incest occurred in just one out of 1 million American families (after Ross, 1996, pp. 6–7). More recent estimates claim that there are approximately 1 million cases of child abuse and neglect substantiated in the United States each year (U.S. Department of Health, 2012, www.acf.hhs.gov).

Types of Trauma

More recent surveys claim that there are 676,569 cases of child abuse and neglect substantiated in the United States each year, which is 9.1 victims per 1,000 children in the population (U.S. Department of Health and Human Services, 2012): (1) Symptoms following non-intentional trauma decrease within three months, while those following intentional trauma increase steadily; (2) risk of PTSD varied from 53.8% after being held captive or kidnapped, to .2% after having detected a dead body; (3) battle groups were more severely

affected by PTSD than subjects who experienced civilian terrorism or work and traffic accidents; (4) a study using structured clinical interviews with 157 help-seeking children aged 8–17 found that confrontation with traumatic news, witnessing domestic violence, physical abuse, and sexual abuse were significantly associated with PTSD, while witnessing a crime, being the victim of a crime, and exposure to accidents, fire or disaster were not; (5) childhood abuse, but not neglect, predicted later positive psychotic symptoms, even when victims were compared to siblings; (6) difficulties in emotional regulation associated with PTSD in trauma survivors were significantly higher in those with early-onset chronic interpersonal trauma than in those with single-event and/or late-onset traumas.

Adverse Childhood Experiences

A study of adverse childhood experiences that included more than 17,000 adults revealed that the incidence rate for different types of trauma is alarmingly high (for a review see Dimitrijevic, 2015). In some cases, one-quarter or even a third of the subjects were exposed to trauma during childhood, with strong gender differences (e.g. there are more physically abused men, but more sexually abused women). More than one-third of the sample had grown up without serious trauma. However, 63.9% subjects had been traumatized at least once and, worse still, as many as 37.9% were traumatized more than once, and every eighth subject experienced adverse experiences repeatedly (four or more times).

Most maltreatment happens in very early childhood, when it has greater negative effects on developing minds and brains. A troubling 5.7% children of ages 0–3 experience trauma or neglect, which is followed by a steady decline, to reach 1.9% at the age 16–17 (see Dimitrijevic, 2015).

Incidence of family trauma is also disturbingly high, and especially for women. Every fifth subject has experienced at least one type of household dysfunction, and some more than one.

Social Trauma

Man-made traumatizations touching great parts of the population, like those caused by genocide, war, dictatorship with racist, ethnic, and political persecution, have a special position among all possible sources of trauma. Social trauma includes (1) organized, intentional perpetration by one social group (for example, nation) against (2) not an individual, but another social group.

While we may hope that a traumatized individual, even a child, can find some support and comfort, social trauma destroys societal and cultural foundations whose support and comfort we otherwise take for granted: home, language, joint memories, as well as hospitals, counseling and psychotherapy services, legal system, etc.

Not only is social trauma important for individuals and groups who need help (see below), but in the core of large group identity. Psychoanalyst and renowned international peace negotiator, Vamik Volkan (1997, 1999) initiated a concept of "chosen trauma," which is widely used. Volkan's comparative research showed that one event – a death, massacre, or genocide a lost battle or kingdom – often becomes a centerpiece of national identity. It is then difficult to negotiate or compromise, because people have an impression that they are betraying this painful myth.

Consequences of Trauma

Many clinical psychologists have, in studies of various types, found that consequences of childhood trauma include but are not limited to the following (see Dimitrijevic, 2015):

- more frequent adoptions, child fatalities, developmental delays;
- poor attachment and socialization, low self-esteem;
- distortions in sensory perception and meaning, constrictions in action, deficits in readiness to learn, attention, abstract reasoning and executive function;
- hormonal dysregulation, smaller frontal lobe volume, asymmetry of left and right brain centers included in the cognitive processes of language production.

Besides developmental and health issues, trauma is especially important for the field of mental health care. The more traumatic events experienced during childhood, the more likely the person is to develop mood disorder, anxiety disorder, substance abuse or impulse control disorder (see Dimitrijevic, 2015). Furthermore, early individual traumata are 4–10 times more frequent among psychiatric patients than in general populations. This is further underlined by comparison studies that established differences between psychotic patients with a history of childhood trauma and those without it (see Dimitrijevic, 2015), which resulted in the finding that the consequences of childhood trauma are associated with:

- more self-mutilation, higher symptom severity, more suicide attempts;
- earlier first admissions;
- more medication;
- longer and more frequent hospitalizations and seclusions.

It was also shown that social trauma has profound negative consequences. A study with 12,746 participants, which compared Holocaust survivors with control groups with no Holocaust background (see Hamburger, 2017) demonstrated that Holocaust survivors were less well adjusted, particularly showing substantially more PTSD symptoms. Another finding was that they also showed remarkable resilience. Higher rates of mood and anxiety disorders were associated with having more potentially traumatic experiences during and after the war in a study that employed multivariable analyses across former Yugoslav republics where 3,313 subjects were interviewed (see Hamburger, 2017).

Connection between family and social trauma was confirmed in a study that showed significant differences in attachment styles related to types of war exposure in three samples of adolescents who grew up under different war impact conditions in towns of three former Yugoslav republics (see Hamburger, 2017).

Testimonial interviews with Holocaust survivors, slave laborers, and survivors of the genocide in Rwanda (for a detailed review see Hamburger, 2017) demonstrated typical cognitive and emotional symptoms: survivors do not have a life history in the form of a coherent autobiographical narrative, and they display "an erasure" of feelings, comprising a massive denial and/or disavowal of trauma, extreme ambiguity, speechlessness, psychotic or seemingly psychotic delusions and other psychotic and psychosomatic symptoms, frequent nightmares, flashback memories, as well as daydreams of persecution.

How Does Trauma Work?

Traumatized children, especially if by intentional traumatization within the family, move toward parents and at the same time away from them and are forced to create multiple models of caregivers. Faced with the situation in which, for instance, the father, the supposed or until recently the actual source of comfort and love, starts abusing him or her, the child may unconsciously decide to sacrifice his or her own mind in order to save the representation of the father. These children may split their memory, cognition, and emotions in order to separate two types of experiences with the parent: loving father from abusive father. There is, then, one part of themselves they do not dare admit even to themselves, one part too horrible to face. The traumatized child first defensively inhibits their capacity to think about inner states of others and her/himself, trying to avoid the insight that the parent may wish to hurt them. Consequently, trauma impedes deeper procession of emotional experiences and interferes with the (further) development of mentalizing capacity or can even destroy it.

This experience may generalize and the child then feels that "looking inside" is dangerous under any circumstances. Being unaware of inner psychological processes means, of course, that you cannot control or regulate them. This is considered to lead not only to disorganized attachment, but to some forms of mental disorders as well.

The involvement of the social environment in the traumatization of a whole group causes severe trauma consequences visible on an interactional level. Denial of acknowledgment, a conspiracy of silence, institutional rejection, breakdown of a successful myth construction, and, moreover, of historical elucidation are among the social symptoms perpetuating social trauma. This also has consequences for the traumatized individual, who, in a scarred and sometimes hostile environment, is then deprived of major resilience factors necessary for a successful coping process.

It is now believed that the cause of many mental disorders is a combination of: (1) severe and/or repeated childhood trauma, and (2) lack of a person who could provide the intersubjective foundation for mentalizing. Trauma, thus, does not have to lead to a mental disorder and will not do so in cases when there are adults ready to face and recognize the child's traumatic experience and offer help in thinking about it and overcoming it.

Is Trauma Treatable?

Not only is trauma devastatingly painful, but it is very expensive (for details see Dimitrijevic, 2015). Therefore, more and more effort is being put into treatment of its consequences.

We now know who the most helpful parents are: autonomously attached women who had experienced significant loss(es) that they managed to overcome (labeled "Earned Secure," as opposed to "Continuous Secure") were able to show the lowest frequency and intensity of frightening or frightful behavior, and proved to be most helpful to their children. Owing to their experiences of both traumatization and overcoming it, these mothers, more or less unconsciously, know what their children need and how to provide that.

A study comparing 88 different interventions, 7,636 parents, and 1,503 children revealed that there was a small but significant improvement *only* when programs were focused on improving parental capacity to accurately perceive and "translate" social signals contained in the infants' and children's non-verbal signals (Bakermans-Kranenburg, van Ijzendoorn, & Juffer, 2003).

See Also

Anxiety
Coping
Depression
Hopelessness
Impulsivity
Learned Helplessness

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Trustworthiness

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The interest in trust across multiple disciplines (e.g. psychology, sociology, economics, business, and ethics) has created some confusion surrounding the conceptualizations of trust and trustworthiness and the distinctions and interactions between. Nevertheless, trust is commonly viewed as subsuming vulnerability to a trustee through expecting their behavior to be altruistic and personally beneficial. In comparison, trustworthiness is considered a multifaceted concept concerning the characteristics of the trustee, specifically, their ability, benevolence, and integrity in carrying out the agreed task with the aim of mutually benefiting the parties involved or aiding the trustor. The three facets of trustworthiness are, in turn, considered antecedents of trust, albeit only contributing toward a portion of trust, being insufficient to fully encapsulate the concept. Together ability and benevolence, and integrity capture the "can-do" and "will-do" aspects of trustworthiness, respectively. The ability component entails the knowledge and skills required to successfully complete a task and in organizational settings the social competence and general wisdom necessary to succeed, whereas benevolence and integrity concern whether or not the trustee will employ those skills in order to benefit the trustor (i.e. act in their best interest). Whereas benevolence refers to the degree to which the trustee wishes to do a good job for the trustor, regardless of any profit, reflecting how loyal, caring and supportive they are, integrity encapsulates how strongly the trustee is considered to be bound by moral and ethical principles or how honest, just and fair they are. Benevolence may, therefore, be seen as contributing an emotional viewpoint to the circumstance, whereas integrity instigates a more rational approach toward to the situation. Moreover, the ability (competence) and benevolence and integrity (warmth) components of trust and other social judgments have been acknowledged and proven across cultures (Collquit, Scott, & LePine, 2007).

The association between trust and trustworthiness may be best described by considering the fact that while the facets of trustworthiness are necessary yet insufficient for predicting trust, a person's' trustworthiness and others' ratings of their trustworthiness are strongly associated with their prior acts of trust and altruism, with high trustors tending to also be

more trustworthy and vice versa, possibly reflecting their greater likelihood to adhere to social standards of reciprocity (Fiske, Cuddly, & Glick, 2007).

This association between trust and trustworthiness also is important in the development of trustworthiness, with the most important predictor of developing a trustworthy nature being past experiences wherein a child has observed interpersonal relationships and interactions reliant on trust. The social learning theory also plays an important role in determining and understanding the approach that participants take in determining whether or not to trust another. Specifically, in order to obtain an indication of one's general trust behavior, experiments utilizing strangers provide the most appropriate means of gaining reliable information, with prior interactions and experiences with others greatly impacting their general willingness to render themselves vulnerable to the actions of others. Furthermore, individuals are likely to employ their previous experiences in similar circumstances in formulating their decision to trust or not trust another.

The Correlates of Trust and Trustworthiness

Individuals who are perceived as trustworthy tend to be wealthy, influential, have high self-esteem, educated, older, happy, well adjusted, respectful, sought out by others for both friendship and sexual interactions, honest, altruistic, less controlling, attractive, sincere, moral and warm. Furthermore, having an internal locus of control tends to provide a strong predictor of trustworthiness (Frost, Stimpson, & Maughan, 1978; Lenton & Mosely, 2011). Conversely, individuals who are manipulative, selfish and cynical are generally considered untrustworthy, as are those who belong to groups that are frequently subject to discrimination and stereotypical judgments, such as homeless individuals and minorities (Gunnsthorsdottir, McCabe, & Smith, 2002).

It is important to note that various models of trustworthiness view the concept as arising from and depending on a combination of factors, including one's personality and previous experiences, contextual cues and the other parties involved. However, trustworthiness has also been postulated as a personality facet that is developed early in life and remains relatively stable throughout one's life and across various situations. For example, the 16 Personality Factor Questionnaire, a broadly used and researched measure of personality, incorporates trustworthiness as one of the primary factors under the higher order "Anxiety" factor. Previous research has generally found that individuals often display high or low trait levels of trust, which is frequently linked to ratings of high and low trustworthiness, respectively. Nevertheless, the degree to which a person acts in a trustworthy manner may vary according to the potential gains they stand to receive from reciprocal relationships, their previous interactions with others or in similar situations and a myriad of other factors.

The Importance of Trustworthiness and Trust

Neuroimaging has confirmed the presence of an automatic neural system that is constantly scanning the environment to alert the individual to any potentially dangerous or harmful stimuli. Neuroimaging and lesion studies have both evidenced that the amygdala plays an

integral role in activating this system in response to potentially threatening stimuli, and have extended this to the realm of unconscious or automatic judgments of trustworthiness, occurring within 100 ms after exposure. Specifically, the amygdala has been found to provide the center for automatic assessment of facial cues in the search for facial properties commonly found to signal untrustworthiness, with the greatest level of activation occurring in response to cues of untrustworthiness (Engell, Haxby, & Torodov, 2007). Nevertheless, while activation in the amygdala reflects implicit judgments of trustworthiness, activation in the superior temporal sulcus reflects explicit judgments of trustworthiness and intention. The subsequent conscious judgment of trustworthiness provides idiosyncratic differences in individuals' judgments and hence modulates the effect that the amygdala has on behavior (Winston, Strange, Doherty, & Dolan, 2002). Furthermore, when trust has been built or identified, oxytocin levels rise but quickly diminish when the social cue of trustworthiness is terminated.

Judgments of trustworthiness are not only integral in identifying indices of potential threat; they also set the precedent for all social interactions, particularly those concerning social gain. Specifically, one of the most important factors in all social environments is determining whether a stranger can be trusted or not. An evolutionary aspect associated with the immediate detection of cues signaling trustworthiness is the tendency for people to aim to disprove others' trustworthiness. That is, we are more attentive to stimuli and features indicating that an individual should not be trusted, rather than searching for signs to prove that they may be trusted. This attentional bias acts to protect one from harm and from participating in detrimental relationships and is particularly strong in those considered to be low trustors (Gurtman & Lion, 1982).

See Also

16PF, Correlates of Honesty

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Twin Studies and Personality

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Psychologists who study personality are interested in the nature and origins of individual differences or variations between people in personality traits and resulting behavior. Why, for example, are some people more extraverted or less conscientious than others? Many different theories about this and about the nature or structure of personality have been proposed since the scientific study of personality began in the early twentieth century. Notable among these is the Big 5 or Five Factor Model of personality, which suggests that the factors of Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism are the major dimensions of personality, while other models have proposed the existence of additional personality traits that lie outside or beyond the theoretical space encompassed by the Big 5. These include the HEXACO (Honesty-Humility, Emotionality, Extraversion, Agreeableness, Conscientiousness, and Openness to Experience) and the Supernumerary Personality Inventory (SPI: Conventionality, Seductiveness, Manipulativeness, Thriftiness, Humorousness, Integrity, Femininity, Religiosity, Risk-Taking, and Egotism). The Dark Tetrad (narcissism, Machiavellianism, subclinical psychopathy, and sadism) is another example of a model of personality that extends beyond the Big 5 and there are numerous others. Some personality psychologists have also included attitudes and intelligence and other cognitive abilities in their theories.

Identical (or monozygotic, MZ) twins share 100% of their genes; fraternal (or dizygotic, DZ) twins share about 50% of their genes, on average, by descent. This difference between MZ and DZ twins makes twins a natural experiment which allows estimates to be made of the relative extent to which genetic and/or environmental factors contribute to individual differences in personality and other traits. Specifically, greater MZ than DZ resemblance indicates genetic influence on the trait(s) under study. Twin studies of personality are, thus, able to account for the major sources of variation between people.

The phenotypic (observed) variance in any given trait can be partitioned into additive and non-additive genetic variance and shared and non-shared environmental variance. Genetic effects are additive when the joint effect of alleles equals the sum of their individual effects. Non-additive effects occur when the joint effect is interactive or multiplicative.

Shared environmental effects refer to situations and events in a twin pair's environment that they have in common; for example, growing up in the same home, having the same parents, possibly attending the same schools and the like. Non-shared environmental effects refer to things that one twin experiences, but that his or her co-twin does not experience. Shared environmental events make twins alike whereas non-shared environmental events make them different. In twin studies, additive genetic effects, non-additive effects, and shared and non-shared environmental effects are customarily designated by the symbols a^2, d^2, c^2, and e^2, respectively.

Human behavioral genetics is the scientific field that studies twins and other genetically informative kinships in which "model fitting" estimates of a^2, d^2, c^2, and e^2 are made. To illustrate, one model might propose that individual differences in a personality trait can be attributed 40% to additive genetic effects, 40% to non-shared environmental effects, 10% to shared environmental effects, and 0% to non-additive genetic effects. These estimates are used to calculate the estimated MZ and DZ variances and covariances and these, in turn, can be compared to the actual variances and covariances obtained from data collected from twins. If there is no significant difference between the estimated and actual variances and covariances it is assumed that the model has a good fit. If a significant difference is found, the initial a^2, d^2, c^2, and e^2 estimates can be changed and a different model can be tested. Typically, a full A, C, E or A, D, E model is tested first (data from twins reared together cannot simultaneously test an A, C, D, E model) and then reduced models such as A, E, or C, E can be tested. An E only model may also be tested if only to show that this produces a poor fit; an E only model could only fit if there was no correlation between either MZ or DZ twins.

Johnson, Vernon, and Feiler (2008) reviewed over 50 years of behavioral genetic research that provided estimates of a^2, d^2, c^2, and e^2 for the Big 5 and related personality traits. In total, over 85,000 pairs of MZ twins and over 106,000 pairs of DZ twins had been given 83 different relevant personality tests and questionnaires; within studies the twin sample sizes ranged between 10 and 7,873 pairs. The key findings of this review were that individual differences in the Big 5 are largely attributable to additive genetic and non-shared environmental factors and that the contributions of non-additive genetic and shared environmental factors are small to negligible. Across all the studies, the median estimates of a^2, d^2, c^2, and e^2 were .45, .02, .12, and .49, respectively, for Openness to Experience; .41, .29, .11, and .52 for Conscientiousness; .48, .26, .03, and .49 for Extraversion; .37, .12, .17, and .54 for Agreeableness; and .41, .22, .06, and .59 for Neuroticism. Some of the studies in this review included pairs of MZ twins who had been separated at birth and raised apart with different adoptive parents. On all measures of the Big 5 the correlations between the reared-apart twins were somewhat lower than those among the reared-together twins, but they were also all larger than the correlations between unrelated adopted siblings when these were reported. This compares to the results of a study by Bouchard, Lykken, McGue, Segal, and Tellegen (1990) which reported that MZ twins reared apart were about as similar as MZs raised together on multiple measures of personality.

The finding that additive genetic and non-shared environmental factors make the largest contribution to individual differences in personality is not restricted to the Big 5. Numerous twin studies have reported the same results for virtually every personality trait that has been measured, including the HEXACO, the SPI traits, the Dark Triad, Trait Emotional

Intelligence, and others. In their classic textbook *Behavioral Genetics* (2008), Plomin, DeFries, McClearn, and McGuffin state that there have been no replicated studies reporting a zero heritability for any specific personality traits, and that environmental effects are almost always non-shared. Studies of attitudes and intelligence and mental abilities have reported that these are also heritable.

With respect to intelligence, it is informative to consider a new type of twin-like sibship, referred to as "virtual twins" (e.g. Segal, McGuire, & Stohs, 2012). Discovered by Nancy Segal, virtual twins are same-age, unrelated siblings who have been reared together with the same parents since infancy. Because they only share their environment their correlation provides a direct estimate of c^2. Segal et al. (2012) reported that the correlation between the IQs of 142 pairs of virtual twins is .28; this would estimate that the heritability of IQ is .72 which agrees with estimates derived from MZ and DZ twins raised together or apart.

Some twin studies have measured two or more personality traits in the same samples and these allow bi- and multivariate analyses to be conducted, which estimate the extent to which a phenotypic (observed) correlation between two or more variables is itself attributable to correlated genetic and/or correlated environmental factors. These analyses compute MZ and DZ cross-correlations: the correlation between one twin's score on one variable and his or her co-twin's score on another variable. To the extent that the MZ cross-correlation is larger than the DZ cross-correlation, this suggests the role of common genetic factors contributing to the phenotypic correlation between the variables.

Numerous multivariate twin studies have been conducted and, in much of this research, phenotypic correlations between different personality traits have been reported to be primarily attributable to correlated genetic factors and to a lesser extent to correlated non-shared environmental factors. Examples include studies that have measured twins on the Big 5 and the Dark Triad, the SPI and the Dark Triad, Trait Emotional Intelligence and Humor Styles, personality and intelligence, multiple factors of aggression, and different factors of antisocial personality disorder, to name a few.

In addition to studies of normal personality traits, twin studies have also focused on the contributions of genetic and environmental factors to the development of abnormal personality or psychopathology. These include studies of schizophrenia, mood disorders, anxiety disorders, autism, and ADHD.

Schizophrenia occurs in about 1% of the general population whereas the concordance rate is about 17% in DZ twins and 48% in MZ twins. These concordance rates clearly implicate genetic factors, but the fact that the MZ rate is less than 50% also means that non-shared environmental factors must also play a role; one such factor may be birth complications. At the same time, the fact that the children of discordant MZ twins are equally likely to develop schizophrenia, whereas among children of discordant DZ twins only those whose parent was schizophrenic are at much greater risk, again implicates the role of genetic factors.

There are two major types of mood disorder: unipolar (depression) and bipolar (depression and mania). Twin studies provide little evidence for the influence of genetic factors on less severe unipolar depression, but clearly implicate the contribution of genetic factors to severe unipolar depression and to bipolar disorder. For these, the concordance rates for DZ and MZ twins are 11% and 40% and 40% and 72%, respectively. Non-shared environmental factors are again implicated.

Anxiety disorders, which include phobias and obsessive compulsive disorder, are among the most common form of mental disorder, but are typically less severe than schizophrenia or major depression. Fewer twin studies of anxiety disorder exist and their results are less consistent: some studies have suggested a genetic influence while others have not. Overall, however, these and non-twin family studies indicate a moderate influence of genetic factors, possibly due to a genetic correlation between anxiety disorders and depression.

Twin studies of autism and ADHD clearly support the influence of genetic factors. The concordance rate for autism among MZ twins is about 60% (1,000 times greater than in the general population) while the concordance rate among DZ twins is lower. Twin studies of ADHD suggest a heritability of about 70%.

To conclude, a substantial amount of behavioral genetic research has been conducted on normal and abnormal personality over the past 60 or so years. Almost without exception, this research converges on the finding that the major sources of individual differences in personality are additive genetic and non-shared environmental factors. In contrast, non-additive genetic and shared environmental factors make a much smaller contribution. Twin studies of personality include MZ and DZ twins reared together or separated at birth and reared apart. Some theories of personality include intelligence and cognitive abilities, and intelligence has also been investigated in virtual twins.

See Also

Behavioral Genetics
Behavioral Genetics, General Features and Methodological Issues
Heritability
Human Genome Project and Personality
Robert Plomin
Twin Studies in Personality Research

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Unconscious Processes, Expression of Personality Process

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The unconscious was a very important topic in various scientific and cultural disciplines during the nineteenth century, especially in Germany and France. Philosophers, as well as poets, maintained that there must be a part of our personalities that we are not and cannot be consciously aware of. It was, however, through the work of Sigmund Freud and within domains of psychoanalytic theory that the unconscious became a scientific field of research, a focus of specific clinical treatment, and, eventually, a household word.

Today, we distinguish between three major dimensions of the unconscious (see Akhtar, 2009):

1) descriptive unconscious – recognition that some contents of psychic life are not accessible to conscious awareness, mostly present in cognitive ("general") psychology;
2) systemic unconscious – notion that one part of the human mind is organized according to certain principles, frequent in personality psychology;
3) dynamic unconscious – the unconscious "material" that influences our behavior, decision-making, dreams, symptoms, etc. which is the basic postulate of psychoanalysis.

Psychoanalytic Understandings of the Unconscious

Freud approached the unconscious as a therapist who realized that his patients' traumatic experiences were not accessible to them, but could be recovered from what we would call their long-term memory. He wondered where these memories were located in the meantime (between the traumatic event and the psychoanalytic session), and discovered that they played a crucial role in the creation of various forms of behavior.

For Freud, the unconscious was far larger and more powerful than the conscious. As this notion was in opposition to Cartesian *cogito*, Freud was first harshly criticized and then inspired many trends in twentieth-century psychology and philosophy. He believed he had discovered the mechanisms that ruled the unconscious, as well as mechanisms of the

mutual influence between the two parts of personality. Mental images in the unconscious may be combined into one (the mechanism of condensation); one image (or its parts) may represent the other (displacment); mental images may refer to something completely different yet very important to the person (symbolization). Freudian analysis is based on recognizing these three mechanisms in symptoms, dreams, slips of the tongue or pen, etc.

The unconscious is powerful because it is the seat of our most important sources of motivation, drives which, Freud believed, were the ultimate reasons behind our conscious decisions. We can try to react to their influence by employing our defense mechanisms, but we can never win this fight: defense mechanisms use up a lot of energy, yet can only change mental representations connected to drives (anger will not disappear, one may only be angry with another person, for instance). Conflict between the two parts was continuous and everlasting, Freud believed, and there was no way for the consciousness to win in the long run.

Alternative visions of the unconscious were elaborated during further development of psychoanalysis. The idea of the collective unconscious, originally formulated by Carl Gustav Jung to deal with similar unconscious images and notions ("archetypes") present in all members of the human race, is still influential, although it is not considered scientifically testable, maybe even not politically correct enough, while Erich Fromm described the social unconscious, which should be shared by all members of the same culture. The so-called object relations theory switched the focus from drives to inner, unconscious representations of social and physical objects, their interactions and influences. French theorist Jacques Lacan believed that the unconscious was structured as a language. Freud's pessimism was also replaced by theories of the unconscious as a possible source of creativity, authenticity, and playfulness. Finally, the unconscious was less and less seen as a depository of elements that were inborn, or occurred too early for us to be able to remember them or were repressed, but as a host of "unformulated experiences."

Regardless of the theoretical conception, clinical practice of psychoanalysts and many psychotherapists is focused on recognizing patterns of influence the unconscious exerts on the conscious. It is considered that the unconscious is revealed through dreams or slips, but even more so through the basic elements of the treatment process: transference (patient's projections onto the therapist), countertransference (therapist's projections onto the patient), and resistance (patient's unconscious subversion of therapeutic gain and improvement).

Empirical Research of the Unconscious

In the beginning, psychoanalysts followed Freud's predicament that "dreams [were] the royal road to the unconscious." This was based on clinical findings that mechanisms of and symbolization in dreams expressed unconscious wishes that were impossible to satisfy during the previous day. Then Jung discovered that association tests with reaction time measurement could empirically validate the influence of the unconscious. The so-called projective techniques of psychological assessment were all based on this assumption: if you show your subjects unstructured stimuli, like Rorschach ink-blots, they will give it a structure in their minds, expressing along the way and without being aware of it some of their unconscious wishes and fears.

In the domain of empirical research, the unconscious is, to put it most succinctly, not a noun, but an adjective. Researchers do not aspire to describe a personality instance, but

only processes that occur outside our conscious awareness. For this they use three basic methods: studying subliminal perception; using psychophysiological methods, like event-related potentials (ERP); and experimental procedures (for details see Shevrin, Bond, Brakel, Hertel, & Williams, 1996).

Empirical research of the unconscious is very widespread, so much so that some of its facets make up the core of contemporary cognitive psychology. Probably the best example of this is the so-called Dual Process Theory. Proponents of this approach, very prominent in social and cognitive psychology, hold that there are cognitive processes that are fast, automatic, and implicit (unconscious), as well as those that are slow, controlled, and explicit (conscious). This distinction, proven in laboratory experiments and fMRI scannings, was elaborated by Freud more than a century ago in the description of "primary process" (which governs the unconscious) and "secondary process" (typical of consciousness). "Cognitive unconscious" is, thus, very similar to an empirically more disciplined version of psychoanalysis, which rarely studies the influence of non-cognitive variables (emotions, drives, fantasies) on cognition.

The existence of unconscious complex psychological processes is hardly doubted by mainstream cognitive science. There are many findings, for instance, about how exposure to visual or verbal stimuli at such speeds that the subjects are not aware of seeing them influences subsequent behavior. This procedure, called priming, may induce anxiety and lead to impulsivity, worse results on simple cognitive tasks, or change in attitudes.

Evidence for unconscious processes is so overwhelming that Shevrin and Dickman's starting question "what behavior requires a conscious decision and what behavior does not" (1980) has recently been resoundingly answered: "Behavior does not originate with a conscious decision" (Dijksterhuis et al., 2007; after Baumeister, Masicampo, & Vohs, 2011), because "most and possibly all human behavior emerges from a combination of conscious and unconscious processes. Nothing we have reviewed would prove that any behavior emerged from exclusively conscious processes" (Baumeister et al., 2011). For instance, participants in one experiment watched a highly precise clock and recorded when they made a conscious decision to move a finger; brain wave activity, however, showed a sharp increase prior to this decision, and this is believed to be evidence for the importance of unconscious decision-making. It is now generally assumed that conscious intentions (1) signal the direction of action, (2) cannot cause the action, (3) can stop an action.

It was also asserted that the unconscious has superior capacity and makes better, more logical choices and decisions: "contrary to popular belief, decisions about simple issues can be better tackled by conscious thought, whereas decisions about complex matters can be better approached with unconscious thought" (Dijksterhuis & Nordgren, 2006). Furthermore, some researchers asserted that "strictly speaking, conscious thought does not exist, because what seems to be conscious thought is merely some calculations performed unconsciously that happen to cross into awareness" (Baumeister et al., 2011).

And there are also those bold enough to furnish a precise numerical estimate: "Our psychological reactions from moment to moment [...] are 99.44% automatic" (Chen & Bargh, 1997).

To summarize, empirical findings about the unconscious processes reveal: (1) that some psychological processes are unconsciously performed and causally determine conscious processes, (2) that they are governed by their own cognitive rules, (3) that they set out their own intentions, (4) and that they lead to a conflicting organization of psyche (after Arminjon, 2011).

See Also

Carl Jung
Clinical Applications of Psychodynamic Theory of Personality
Experimental Approaches
Neurophysiological Assessment (Brain Imagining Techniques – EEG, PET, and fMRI)
Object Relations Theory
Priming
Rorschach Test

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Mihaly Csikszentmihalyi

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Milhaly Csikszentmihalyi is the C. S. and D. J. Davidson Professor of Psychology at the Peter F. Drucker Graduate School of Management at Claremont Graduate University and founder and co-director of the Quality of Life Research Center there. The center is a non-profit research institute that studies "positive psychology"; that is, human strengths such as optimism, creativity, intrinsic motivation, and responsibility. In 2008, the center launched the world's first doctoral programs in Positive Psychology. Csikszentmihalyi is a member of the American Academy of Education, the American Academy of Arts and Sciences, and the National Academy of Leisure Studies. In 2009, he was awarded the Clifton Strengths Prize and received the Széchenyi Prize, the Hungarian national science prize, in 2011. He is also emeritus professor of human development at the University of Chicago, where he is former chair of the Department of Psychology, and he holds honorary doctorates of science from Colorado College and from Lake Forest College, and a doctorate of fine arts from the Rhode Island School of Design. He is the author or co-author of more than 15 books and some 250 research articles.

Milhaly Csikszentmihalyi was born in Fiume, Italy (today Rijeka, Croatia), on September 29, 1934. His family was from Hungary, and his father worked as Hungarian diplomat to Italy. Csikszentmihalyi grew up in Italy with World War II deeply disrupting his and his family's life. While still a child, he was held in an Italian prison camp outside Rome, where his parents worked. During the war, many of his relatives and friends in Budapest were killed. One of his brothers died in combat, and another was sent to forced labor camp in Siberia by the Russians. While experiencing the war, several insights became particularly formative for the young Mihaly: he was struck by how he was able to immerse himself in a game of chess for hours even though the world around him was in flames; he was disappointed by the adult generation's obvious incompetence in protecting what is most important in life and giving in to mass delusions, notably brought about by the propaganda of Hitler and Mussolini; and he found inspiration in psychological approaches, such as Carl Gustav Jung's, to do something about it. Csikszentmihalyi immigrated to the United States in 1956 at the age of 22 to study psychology at the University of Chicago where he received his BA in 1960 and his PhD in 1965. He is married to the writer Isabella Selega with whom

he has raised their two sons, the artist and technologist, Christopher Csikszentmihalyi and the professor of philosophical and religious traditions of China and East Asia Mark Csikszentmihalyi.

Milhaly Csikszentmihalyi is one of the most influential developmental psychologists living today. He is best known for the theory of flow as an expression of optimal experience (Csikszentmihalyi, 1990). He also pioneered the influential experience sampling method on which much of the empirical work on flow is based (Hektner, Schmidt, & Csikszentmihalyi, 2007). Following the huge popularity of his book "Flow – the Psychology of Optimal Experience" (1990), he developed the broader systems theory of the emergence of the self, which promotes the idea that modern human beings should take fuller responsibility for their personal actions and their environments through increasing self-awareness and control of consciousness, thereby freeing themselves of excessive genetic, cultural and selfish constraints. This theory was laid out in the magnum opus, "The Evolving Self," subtitled "A Psychology for the Third Millennium" (1993), by which important intellectual and synthesizing headway was made toward what would a few years later become "positive psychology." For more than a decade, in collaboration with psychologists Howard Gardner and William Damon, he led the GoodWork Project aimed at understanding how leading professionals do work that is at the same time engaging, excellent, and ethical (e.g. Gardner, Csikszentmihalyi & Damon, 2001; Csikszentmihalyi, 2003), and with Martin Seligman he co-founded the field of Positive Psychology (Seligman & Csikszentmihalyi, 2000; Csikszentmihalyi, 2014), which has since become what may be viewed as an empirically strengthened humanistic psychology.

The contributions by Milhaly Csikszentmihalyi to our understanding of human motivation, enjoyment, creativity, community building, and ethics have had an impressive appeal throughout the world. Artists, educators, business people, athletes, and many other professions continue to be inspired by his work. Thus, half a century after the initial works on flow theory, and almost two decades after the inception of Positive Psychology, he stands as one of the brightest beacons of psychology, potentially enlightening any domain of human interest for generations to come.

See Also

Creativity
Erikson Psychosocial Development Stages
Flow
Locus of Control
Self-Determination Theory
Self-regulation

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Jeffrey A. Gray

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Background

Jeffrey Gray was a renowned British experimental neuropsychologist from Oxford University who made remarkable contributions to the field of neuropsychology of emotion, personality, anxiety, and schizophrenia. Born May 26, 1934 in East London, Gray was primarily raised by his mother following the passing of his father when Gray was 7. As a child, Gray attended Ilford County High School for Boys where he undertook studies in Latin, Greek, and history, even taking home the title of school boxing champion. He joined the military in 1952 and during his years of service, taught himself to speak Russian, a skill in high demand from Army intelligence. His completed his military service in 1954 and continued to pursue his love of languages, going on to learn French, Spanish, Italian, and his wife Venus' native language of Persian. Outside the laboratory, Gray greatly enjoyed the arts, and once directed a production of *The Winter's Tale* in the Deer Park at Magdalen College. For the lead role of *Autoycus*, Gray came across a very talented young actor and decided to give him the role; that young man was Dudley Moore. Gray and Venus had four children, Ramin, Babak, Leila, and Afsaneh. On April 30, 2004, Jeffrey Gray died following a long battle with illness.

Academic Career

In 1955, Gray was awarded a MacKinnon scholarship to Magdalen College in Oxford to study law. However, his career in law was short-lived and Gray moved away from law to study modern languages, and was awarded the highest grade in Spanish and French. Following the successful completion of his first degree, Gray went on to complete a second degree in psychology and philosophy in 1959. He trained as a clinical psychologist and received his PhD in 1964 for his work on the emotional behavior of animals at the Institute of Psychiatry at King's College in London, which at that time was headed by renowned intelligence and personality psychologist Hans Eysenck. On one occasion, Gray acted as

Eysenck's Russian translator at a conference in Moscow in 1966. It was there the two met Marvin Zuckerman, a renowned psychologist in sensation seeking and personality. This academic comradeship would last the rest of both Gray's and Eysenck's lifetime.

In 1964, Gray worked as a lecturer within the Department of Experimental Psychology at Oxford University and was subsequently awarded an associate tutorial fellowship at University College in 1965. After 19 years at Oxford, Gray returned to the Institute of Psychiatry at King's College in London and became Hans Eysenck's successor as chair of psychology. Gray held the position of chair until his retirement in 1999, but continued his research in experimental psychology as an emeritus professor within the Center for Advanced Study in the Behavioral Sciences at Stanford University, California from 2001 to 2002.

Major Contribution: The Biopsychological Theory of Personality

Gray's work in the field of personality has been fundamental in the understanding of the biological mechanisms that underlie personality and individual differences. His interest in the functionality of the septohippocampal region led to one of his most significant contributions to science – *the biopsychological theory of personality*. Gray began his academic studies at the Institute of Psychiatry headed at the time by Hans Eysenck, a prolific German-born English psychologist whose theories regarding the foundations of personality Gray would later go on to contradict, citing his own biopsychological explanations. Both theorists cited specific neural activation to explain personality – Eysenck proposed the *ascending reticular activating system* (ARAS) led to specific behaviors based on stimulation or arousal, and Gray proposed the *behavioral inhibition/activation system* (BIS/BAS) that led to specific *approach* or *avoid* behaviors based on reinforcement signals. Gray's theory states that people will assess any given situation and based on previous experience, their behavior will either be to approach that situation (*appetitive motivation*) or avoid it (*aversive motivation*). The underlying mechanisms for each system are neurologically diverse, which differentiates Gray's biopsychological theory of personality from Eysenck's. The aversive actions of the BIS are linked to activation within the septohippocampal region including its brainstem-derived afferent monoaminergic pathways and neocortical projections to the frontal lobe. This system leads to the inhibition of action toward goals, and is composed of negative feelings such as fear, anxiety, frustration, and sadness. The BAS is more closely tied to the actions of the mesolimbic catecholaminergic pathways, specifically dopaminergic pathways, which are strongly linked to the brain's reward and punishment systems. This system is composed of positive feelings such as hope, elation, and happiness. Together the systems work in an antithetical manner, meaning a person may approach a given situation with either system depending on their individually reinforced moderating factors.

Gray's theory proposed two personality dimensions key to these approach and avoid actions – *impulsivity* and *anxiety*, which can be roughly paralleled with Eysenck's original personality dimensions for *Extraversion* and *Neuroticism*, respectively. Gray's and Eysenck's theories approach the concept of personality from opposite ends; as psychologist Marvin Zuckerman once noted, "Eysenck (1967) was an exemplar of the top-down approach and Gray (1982) is one for the bottom-up approach." There are many advocates for Gray's biopsychological theory of personality, however, many believe the theory is so highly

specific that it only truly encompasses a small range of behaviors, limiting its overall scope to a narrow portion of human behavior.

Major Contributions to Anxiety

In collaboration with Neil McNaughton (University of Otago, Dunedin, New Zealand), Gray published the controversial, yet historically significant book *The Neuropsychology of Anxiety*. The text was quickly established as essential for neuropsychologists, and earned itself the "instant classic" label despite the controversy surrounding the newly posited theories of anxiety and their underlying mechanisms of action. Gray posits that the role of the septohippocampal network is to detect conflict between two goal states: *approach* and *avoid*. The number of conflict combinations can therefore be easily noted: *approach-approach*, *approach-avoid*, and *avoid-avoid*, which are acted upon depending on the moderating factors involved. It is this competition of decision-making that Gray documented as a possible neurological explanation for symptoms of anxiety. In an updated edition of the book (2000), Gray and McNaughton support previous evidence for the role of the septohippocampal network in anxiety, noting that anxiolytic drugs produce similar effects to septohippocampal lesions on outcomes for behavior and memory function.

Major Contributions to Schizophrenia

In 1991, Gray and colleagues proposed a neuropsychological model for schizophrenia. Derived from extensive clinical and experimental data from various fields of investigation, Gray was able to provide one of the most complete neuropsychological explanations for schizophrenia the scientific world had seen up until that time. Gray and his team utilized "postmortem neuropathology and neurochemistry, clinical and preclinical studies of dopaminergic neurotransmission anatomical connections between the limbic system and basal ganglia, attentional and other cognitive abnormalities underlying the positive symptoms of schizophrenia, specific animal models of some of these abnormalities, and previous attempts to model the cognitive functions of the septohippocampal system and the motor functions of the basal ganglia." With this abundance of data and empirical evidence, Gray published the now infamous The neuropsychology of schizophrenia, a chapter within the book *Biological Psychiatry* published in 1991. This massive collection of data allowed Gray to report a neurological dysfunction between past and present associative memories related to positive symptoms with acute schizophrenia, and this neuropsychologically distinct theory identified why persons with the disorder have difficulty processing new information.

Other Notable Works

In 1971, Gray published the innovative *The Psychology of Fear and Stress*. It was noted as an extremely interesting theory that discussed the mediation of anxiety and the fear responses in the brain. The work discusses neurological responses to particular environmental

demands, with a preponderance animal experimental research allowing greater insight in pathological samples. The book was praised for its accessibility not only to clinicians, but to university student and layman readers interested to learn about the biopsychological response to everyday stresses. In 1987, Gray published the second edition of the book, adding significant amounts of empirical evidence from a decade of research to update his neuropsychological theories on emotion, anxiety, fear, and stress.

In 1975, Gray wrote *Elements of a Two-Process Theory of Learning*. The text discusses the two-process theory of learning, which argues that animal learning consists of classical and instrumental conditioning. The book goes on to examine underlying mechanisms for emotional learning in humans and the intricate ways the human personality is structured.

Acknowledgments and Awards

Jeffrey Gray was one of the leading experimental psychologists in the United Kingdom. Part of his 1964 PhD thesis was published as a book, *Pavlov's Typology; Recent Theoretical and Experimental Developments from the Laboratory of B. M. Teplov*. It was an English translation of key work conducted in Russian laboratories and was praised as "...the best exegesis and clarification of Russian work to be produced by any western psychologist" (Professor Stuart Sutherland, Oxford University). Gray received the president's award from the British Psychological Society in 1983 and was made an Honorary Member of the Experimental Psychology Society in 1999.

Conclusion: Personality and Individual Differences

Jeffrey Gray's significant contribution to the field of neuropsychology has enabled a generation of clinicians to understand the neurological mechanisms that underlie human personality and individual differences. The breadth of evidence Gray vigilantly assembled and examined in each of his works is a testament to his commitment to the science of neuropsychology.

Owing to the dynamic nature of the field, Gray's contribution has significantly enhanced the foundations of personality and individual differences research, allowing clinicians to use neurological and neurochemical explanations for various personality traits. Overall, Gray's contributions to the biopsychological mechanisms in personality, anxiety, emotion, and schizophrenia have provided the groundwork for future research in personality.

See Also

Reliability, Issues of
Validity, Issues of

Further Readings

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Douglas N. Jackson

Sampo V. Paunonen[†1] and Richard N. MacLennan[2]

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Douglas Northrop Jackson was a psychologist renowned for his contributions to personality assessment and psychometrics. He was born on August 14, 1929, in Merrick, New York. He first completed his Bachelor's degree in Industrial and Labor Relations at Cornell University in 1951. He then chose to follow other interests in graduate school and registered in the Clinical Psychology program at Purdue University. There he completed his Master's degree in 1952, followed quickly by his doctorate in 1955 under the tutorship of John M. Hadley. While he was enrolled in the doctoral program at Purdue, Jackson did an internship at the Menninger Foundation in Topeka, Kansas, under Gardner Murphy (1953–1954). He continued his work there as a postdoctoral fellow (1955–1956). Murphy was to have a huge influence on Jackson's intellectual thinking and research direction. It was also during those early years that Jackson decided that he was not cut of a cloth suitable for clinical practice, and his research interests began to turn in the direction of personality assessment. Jackson spent most of his professional career at the University of Western Ontario, in London, Ontario, Canada (1964–1996).

Although Jackson's earliest publications were in the area of clinical psychology, he began a productive collaboration with Samuel Messick in the late 1950s and, together, their interest turned to standardized methods of psychological assessment. In particular, Jackson and Messick were intrigued by the thinking process involved in a test respondent's decision to choose one response option over another in completing the items of a personality questionnaire. They came to the realization that accurate self-reports to such items could be seriously compromised by what they called response styles. A response style is a characteristic approach to item responding that involves a bias for preferring some types of item alternatives over others. One such response style or bias studied by Jackson and Messick is called acquiescence, or the preference for the true, yes, or agree response options where available. Another response bias, which has a prominent place in the assessment literature even to this day, is socially desirable responding, or the tendency to prefer the more desirable

response option to an item where available. Jackson and Messick's research on response styles resulted in one of their most influential works, called "Content and style in personality assessment," published in *Psychological Bulletin* in 1958. In that article, the authors emphasize the need to develop personality scales that actively control for the various response biases that can negatively impact on a measure's accuracy or validity.

Jackson's interest in personality assessment accuracy was more general than that related simply to response styles. Much of his thinking and research in the 1960s and beyond involved philosophical issues about the very meaning of the personality test item response. Inspired by theoreticians such as Cronbach, Loevinger, and Meehl, Jackson firmly believed in the importance of test item content, and the relation of that content to some theoretically based personality trait or construct. This idea is basic to the construct-based method of personality scale construction, where one begins with a well-defined nomological network of interrelated personality traits and writes test items that describe behaviors and beliefs that are prototypes or exemplars of the trait being measured. This strategy of test design, championed by Jackson, is starkly different from the older criterion-based approach preferred by some, whereby item criterion predictive power rather than item content is considered the ultimate metric by which a test item should be judged. Jackson eschewed criterion-based methods of test design, mostly because the resultant test scores can have no psychological meaning. His views on test construction are most eloquently expressed in (1) his seminal statement on the theory and practice of personality assessment, published in *Psychological Review* in 1971, called "The dynamics of structured personality tests: 1971," and (2) his development and publication of several well-regarded personality questionnaires, the most famous being the Personality Research Form and the Jackson Personality Inventory. He spent a large part of his career gathering and publishing empirical evidence of the superiority of construct-based approaches to personality assessment over other approaches.

Jackson and many of his students shared an avid interest in person perception and, in particular, the accuracy of people's ratings of personality. This area of research has an obvious connection to personality assessment for two reasons. First, self-reports on personality items can be seen as a special case of person perception, where the target is the informant on him or herself, so many of the issues involved in the accuracy of peer ratings of personality apply to self-ratings of personality. Second, peer ratings of personality are often used as a criterion by which self-rating scales are validated, so anything that can affect that criterion can in turn affect test validation results. Jackson was a strong believer in the accuracy of self-reports of behaviors and beliefs, and in the corroborating judgments made by well-acquainted informants. This area of his research was instigated primarily as a response to Walter Mischel's attack on personality assessment, in a book entitled *Personality and Assessment* (1968). More fundamentally, the research was consistent with Jackson's fervent belief in the existence of personality traits and, consequently, in the general consistency and predictability of behavior, two ideas that are at the very foundation of construct-based personality assessment. Much of the related theorizing and empirical research was summarized by Jackson and Paunonen in an *Annual Review of Psychology* article published in 1980.

Jackson took a very early interest in computer applications in psychology, having written a book chapter on problems in computer models of personality back in 1963, long before the advent of the personal computer revolution. In his research lab, he was an early adopter of new microcomputer technology when it first became available, including the Radio

Shack TRS-80, Osbourne 1, IBM PC and AT, Toshiba Laptop, and Apple Macintosh. The first computer applications that Jackson implemented were writing programs to score and generate interpretative reports for his own personality inventories. Importantly, he felt that such computer-generated interpretative reports should be validated themselves, just like the tests on which they were based. Jackson also recognized the potential for computers to be used for the administration of both personality and cognitive tests, realizing their utility for advancing new developments in psychological assessment such as tailored testing. He also appreciated the computer's ability to collect important ancillary test data such as response latencies, which could yield valuable additional information on the respondents' cognitive abilities and even personality characteristics (MacLennan, Jackson, & Bellantino, 1988). Jackson was appointed as the American Psychological Association representative to the International Testing Commission, where he played a role in formulating their initial ethical guidelines for computer-based psychological assessment.

A passion for psychometric issues and the advent of user-friendly computer technology meant that Jackson and his students were able to make significant quantitative contributions to personality theory and assessment. Many of these endeavors involved the creation of sophisticated statistical algorithms. For example, he developed indices of person reliability, used to detect careless responding to psychological test items. He offered us the Item Efficiency Index, which represents the degree to which a test item is saturated with its own trait content and is independent of content related to irrelevant traits or to desirability. Jackson was aware of the importance of factor analysis to test construction, so he worked on a variety of problems related to (1) determining factor reliability, (2) developing techniques for multitrait-multimethod evaluations, (3) estimating the accuracy of different factor extraction methods, and (4) simplifying techniques for factor rotation such as Procrustes and Univocal varimax transformations. Also, in the area of person perception, he did some innovative work by applying person characteristic curves to judgments people make about others, and then relating the slope and threshold of an individual's curve to the psychological processes that underlie that person's perceptions of others.

In his later years, Jackson's research interests returned to his very earliest roots in industrial-organizational psychology, in which he did his Bachelor's degree. In fact, Jackson was instrumental in establishing the graduate I/O program at Western University, designed so that students could intern in business organizations, government, and non-government agencies, thus gaining both practical work experience and important resources for their graduate research. But, beyond this, Jackson left an indelible imprint in I/O psychology. In particular, he argued forcefully for applying sound psychometric principles to solving some of the problems in I/O psychology, most notably in the area of personnel selection and productivity. He strongly believed that personality measures had a critical role to play in matching the right person to the right job, but that previous research had failed in this endeavor by using inadequate psychometric tools (Jackson, Tett, & Rothstein, 1991). Another area in which he contributed important research was on the significant function that person perception had in the employment interview. Through several experimental studies, he was able to show that both lay people and professional personnel managers alike had an implicit, and consensual, understanding of the congruency between certain personality characteristics and related occupational roles. The data supported Jackson's belief that a well-designed structured interview could be an effective personnel selection tool in maximizing employee productivity and satisfaction.

Douglas Jackson was the founder of Research Psychologists Press and Sigma Assessment Systems, the publisher of some 20 of his own tests and questionnaires related to personality, psychopathology, cognitive abilities, and vocational interests. His substantial contributions to psychology have been well recognized. In 1997, he was awarded the Saul Sells Award for Lifetime Contributions to Multivariate Behavioral Research from the Society of Multivariate Experimental Psychology. He was elected President of APA's Division of Measurement, Evaluation, and Statistics (1989–1990), as well as President of the Society of Multivariate Experimental Research (1975–1976). He was nominated as Chair of APA's Committee on Psychological Tests and Assessments, and served as a member of the Executive Council of the International Test Commission. In 1989, he was elected Fellow of the Royal Society of Canada. Before his death, Jackson was honored with the 2004 Samuel J. Messick Award for Distinguished Scientific Contributions by Division 5 of APA. Douglas N. Jackson passed away on August 22, 2004 in his home in London, Ontario at the age of 75.

See Also

Computer Adaptive Testing (CAT)
Factor Analysis in Personality Research
Individual Differences in Employee Performance
Response Styles, Issues of

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John F. Kihlstrom

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Background

John F. Kihlstrom was born on October 24, 1948, in New York to Waldo and Harriet Kihlstrom. He was the youngest of three children with older siblings Donald and Jean. As a child, John assisted his mother in the proofreading of psychological reports for children at school with educational difficulties. It was this job that provided John with his initial drive to become a personality psychologist when he grew up.

Kihlstrom began his education at Colgate University, in 1970. During a course taught by William Edmonston, Kihlstrom found exactly what he was looking for, a mentor in personality psychology. It was here Kihlstrom took on a role as a Research Assistant within the Hypnosis Research Laboratory, eventually completing his Bachelor of Arts in Psychology with High Honors. From here, Kihlstrom moved to the University of Pennsylvania to begin his PhD within the Program of Research Training and Experimental Psychopathology. Kihlstrom requested to spend his time there continuing to investigate hypnotism and so he took on the role of Research Assistant for the Unit for Experimental Psychiatry where he began research in posthypnotic amnesia, and then moved into researching memory and consciousness. He was awarded his PhD in Personality and Experimental Psychopathology in 1974 and received the Henry Guze Award for best research paper in the field of hypnosis, titled "Posthypnotic amnesia as disrupted retrieval" by the Society for Clinical and Experimental Hypnosis. Kihlstrom then took on the role of Research Associate in 1974 and finally as a Research Psychologist in 1975, at the Unit for Experimental Psychiatry, The Institute of Pennsylvania Hospital.

Kihlstrom was appointed to an assistant professorship at Harvard University in 1975, within the Department of Psychology and Social Relations teaching psychological assessment. During his time, he was invited as a visiting professor to Stanford University within their Department of Psychology between 1977 and 1978. In 1980, Kihlstrom was promoted to associate professor at Harvard. His work during this time led to an American Psychological Association Early Career Award for his work in personality in 1979.

Kihlstrom moved from Harvard to a tenured position as associate professor at the University of Wisconsin in 1980. While there, Kihlstrom also took on a role of a visiting scholar at the Center for Cognitive Science at the University of Michigan. He was appointed professor in 1984 and was awarded the H. I. Romnes Faculty Fellowship from 1984 to 1987 and spent time as a Visiting Fellow at the School of Behavioral Sciences in Psychology at Macquarie University in 1986. Kihlstrom went on to teach courses in personality within the Department of Psychology at the University of Arizona from 1987 to 1994, and then at Yale within the Department of Psychology in 1994, as well as holding a fellowship at Silliman College. Finally, Kihlman began his position as professor at the University of California, Berkeley in 1996.

During his time at the University of Wisconsin, Kihlman met his current wife Lucy Canter. He continues to collaborate with her, in the field of health, cognition and behavior.

Major Contribution: Consciousness and Personality Assessment

Beginning in the 1950s in response to what psychologists deemed the "dark years of radical behaviorism," when subjects such as cognition and personality assessment were deemed unworthy of scientific study and therefore rarely found in the curriculum, there began a *cognitive revolution*. This revolution focused specifically on the mechanisms of the mind, whereas behaviorism ignored such things, and investigated the mental structure of cognition and its responses to the environment. In a recent paper, Kihlstrom references Hermann von Helmholtz's viewpoint that an individual's conscious experience of the world is influenced by *unconscious inferences*. This concept, that our thoughts and interactions with the environment are (at least in part) controlled by unconscious forces, was also investigated extensively by Sigmund Freud. These works spurred on Kihlstrom's primary theory that cognitive processes exist that operate outside of conscious thought. Kihlstrom focused on what he called the *cognitive unconscious*, an integral moment of information processing where incoming sensory information and the stored memories of that individual collide in a moment of neural collaboration. This moment produces a series of complex and interrelated unconscious processes that create a context for which that person perceives and behaves in that environment. One example Kihlstrom provides regarding *automatic processing* describes how people may assess one person's face as pleasant and another's as less so but would be at a loss to explain why this difference exists. These processes, he explains, cannot be explained by any psychological unconscious, but by a cognitive unconscious. Kihlstrom highlights the difference between the automaticity of procedural knowledge and the similarly implicit nature of what he denotes as a *preconscious declarative knowledge structure* which, in particular circumstances, is accessed below the threshold of conscious awareness that enables a uniquely individual perception of the environment. Kihlstrom succinctly describes this entire process stating "episodic memory is autobiographical."

During his time at Harvard, Kihlstrom taught graduate courses in psychological assessment with specific academic texts relating to personality, its assessment, and its predictability, as well as comprehensive introductions to diagnostic testing. Kihlstrom regarded personality as an integrated element of an individual's interaction with their environment,

rather than a separate dimension. In a unique case study in 1996, Kihlstrom and colleagues were able to establish that despite the (temporary) loss of episodic memory in a patient (W. J.), the patient's understanding of their own personality remained consistent. They could identify their "self" in personality terms, without the need for episodic memory. This case study indicates the complex nature of the self and the way in which that knowledge is organized in the brain.

Kihlstrom posits that the resulting behavior should be considered as *reciprocal determinism*, a combination of factors that include interactions between a person and their behavior, that behavior and the environment, and that person and the environment.

Major Contributions to Hypnosis

During his early career, Kihlstrom was also exposed to the research and psychology of hypnosis. During his PhD at the University of Pennsylvania, Kihlstrom published a number of papers pertinent to his dissertation regarding the subject matter of posthypnotic amnesia, memory, retrieval, and consciousness. After receiving his PhD and adopting the practice of hypnosis into his research, he hypothesized that hypnosis allowed therapists to gain insight into the *cognitive unconscious* of an individual. He posits that hypnotic studies provide insight into the distinct differences in episodic and semantic memory and intuitive problem solving. Kihlstrom's primary theory was around *posthypnotic amnesia*. His research investigated subjects in amnesic states, by asking them to recall items presented to them during times of hypnosis at a number of time-points. The inability to recall the items demonstrated successful amnesia; however, once a reversible cue was presented to them, the items could be recalled. Kihlstrom's work illustrates that there are mechanisms that memorize the presenting items despite the hypnotic state and others that repress that memory once they have returned from it. This is the finding that there exists a dissociation between episodic and semantic forms of declarative memory. The process of hypnotism impairs episodic memory such as *free recall*, but spares semantic memory such as *word association*.

Kihlstrom has also demonstrated that the effect of hypnosis upon a person's *perception* of a medical issue, rather than the issue itself, may alter the way that individual experiences any associated pain. This work led to publications exploring the nature of altered states of consciousness and cognition as well as the possibility of how children may form an understanding of theory of mind.

Other Notable Works

In the mid-1980s, Nancy Cantor and John F. Kihlstrom began work on a textbook about personality, cognition, and social interaction. This work formed the foundation for their theory of social intelligence in personality and was eventually published in 1987 in a book titled *Personality and Social Intelligence*. He has since published texts on basic behavioral science research for mental health in 1998, autobiographical memory (2009), social neuroscience (2010), unconscious processes (2013), and the most recent book titled *The Person–Situation Interaction* in 2013.

Acknowledgments and Awards

Kihlstrom received the Phil R. Miller Award in Psychology in 1970 followed by the Sherry K. and Harold B. Crasilneck Award in 1973 and the Henry Guze Award in 1974 for the Best Research Paper in the field of Hypnosis. Kihlstrom received both the Distinguished Scientific Award for an Early Career Contribution to Psychology and the *APA* Early Career Award in Personality in 1979. He received the Arthur Shapiro Award for Best Book in the Field of Hypnosis, as well as the Morton Prince Award for distinguished contributions to the development of hypnosis, both in 1980. He received the award for Best Theoretical Paper in the Field of Hypnosis for "Conscious, Subconscious, Unconscious: A Cognitive Perspective" in 1985, again in 1988 for the "The Cognitive Unconscious" and again in 1994 for "The Self-Regulation of Memory."

He was also elected to the Society of Experimental Psychologists as well as Richard and Rhoda Goldman Distinguished Professor in the Division of Undergraduate and Interdisciplinary Studies. He is a Fellow for the American Association for the Advancement of Science and the American Psychological Association. He has also received commendations for distinguished teaching at Yale University in 1997, an editorial service award as editor of Psychological Science from 1995 to 1999, for his contributions to the history of hypnosis in 2008 and for the best paper on a historical topic on Hypnosis in 2011.

Conclusion: Personality and Individual Differences

John F. Kihlstrom's work significantly contributed to the field of personality from the cognitive perspective and provided distinct insights into the conscious, the subconscious, and the unconscious. His work in hypnosis and its relationship to the cognitive unconscious inspired a new way of understanding how people store information below the conscious threshold. These unconscious memories create the individual differences seen in personality and the multiple ways in which people respond to their environment.

See Also

Unconscious Processes
Unconscious Processes, Expression of Personality Process

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Salvatore R. Maddi

Salvatore R. Maddi

University of California, Irvine

The son of poor Sicilian immigrants, Salvatore Maddi was the youngest of his parents' four children, and the only male. Born in 1933, he grew up in the upper east side of Manhattan (New York) in what was then a gang-infested, immigrant neighborhood. His parents and sisters all saw him as the hope of the family, encouraging him to do well in school, so that he could make something of himself. Fortunately, Maddi's commitment to learning in school opened up his teachers to him, as most of the other boys were gang members, and were in school only because they had to be. His teachers tried to convince him that he was intelligent, and encouraged him to go to college and beyond.

When, at the end of his second year at Brooklyn College, he was forced to designate a major, all he could do was decide on Psychology, as his only A up to that point was in the required introductory psychology course. Once he designated that major, the psychology professors (who included Wayne Dennis and Edward Girden) took him under their wings, and his grades flourished enough for him to graduate with honors.

With the encouragement of the Brooklyn College psychology teachers, Maddi applied to and was accepted into and financed by the PhD program in the Department of Social Relations at Harvard University. There, he was very much influenced by Gordon Allport, Jerome Bruner, and David McClelland. Maddi served on the research teams of the latter two professors. His PhD dissertation was supervised by McClelland, and he received in 1960 a PhD with Honors in Personality and Clinical Psychology.

Receiving several academic job offers, Maddi became in 1959 an assistant professor at the University of Chicago. He taught and did research, counseling, and consulting there for 27 years, as he rose up through the ranks, becoming a full professor. He taught personality and clinical courses, and supervised many graduate students who have made their own contributions to psychology. Then, in 1986, he transferred to the University of California, Irvine, where he is still undertaking all these activities, and has also added consulting work and expert witnessing in civil rights lawsuits. He has won various awards at both universities. In his career, he has published many articles and books. He is also a Fellow of the American Psychological Association, and several of its Divisions. In addition, he is a Fellow

of the Society for Personology, the American Psychological Society, the Communitarian Network, the American Society of Bariatric Surgery, the American College of Forensic Examiners, and the International Network on Personal Meaning.

Early in his career, Maddi (1968) published a ground-breaking textbook: "*Personality Theories: A Comparative Analysis*." This book, which has been translated into several foreign languages and is still in print (in its 6th edition) has influenced several generations of psychology students and teachers, and has had a major impact on the field of personality psychology. The text takes a vigorous approach to evaluating the scientific merit of various personality theories, examining empirical support, and applying careful logical and conceptual analysis. From this has emerged his meta-theory of personality that has had a large effect on the expression of personality positions, and has identified key issues that need to be resolved through more precise theorizing and research. Essentially, he argues that there are three models of personality theorizing (conflict, fulfillment, and consistency), each with two subtypes. And, there are conceptual issues separating the three models, with empirical resolution of the issues being essential to progress.

As to his own personality theorizing, research, consulting, teaching, and counseling, Maddi started with the importance of the need for variety as an influence on curiosity and creativity (e.g. Maddi, 1965). As his career progressed, he drew on and elaborated existential psychology to further develop his theoretical and empirical approach concerning life's stressful nature, and how the pattern of attitudes and strategies he called hardiness can help in turning this from a potential disaster into a growth opportunity instead (e.g. Maddi, 1978, 1986, 2002). This work has been well received all around the world.

Maddi's current emphasis is research, assessment, and training of hardiness. This work began with a 12-year natural experiment at Illinois Bell Telephone (IBT) in Chicago. In this project, 450 managers were tested every year from 1975 through 1987 on a range of personality, health, and performance measures. Six years into the design, the anticipated federal deregulation of the telephone industry took place, and is still regarded as a major stressful upheaval. In the wake of this reorganization, two-thirds of the sample deteriorated in performance and health, whereas the other third showed resilience in not only surviving, but also thriving. The analysis of data collected before the upheaval showed that the resilient third had all along been stronger than the others in hardiness. Many papers and a book (Maddi & Kobasa, 1984) emerged from this seminal study.

Since the IBT project, hundreds of research studies on hardiness have been done by Maddi, his students, and others in this country and abroad. Hardiness has emerged as a pattern of attitudes and strategies that, together, help one to turn stressful circumstances from potential disasters into growth opportunities instead (Maddi, 2002). In this, the hardiness attitudes are the three Cs of commitment, control, and challenge. Strength in the commitment belief involves staying involved no matter how bad things get. Strength in the control belief emphasizes continually trying to influence outcomes rather than giving up. And, strength in the challenge belief indicates belief that life is by its nature stressful, and that this provokes trying to learn how to improve things. Together, these 3Cs provide the courage and motivation to do the hard work involved in learning how to grow from stresses. This hard work requires problem-solving (rather than avoidance) coping, socially supportive (rather than conflictful) interactions, and beneficial (rather than over-indulgent) self-care. Hardiness has been found to enhance performance and health, and protect against undermining negative emotions, in a large variety of stressful circumstances, such as

immigration, military and work deployment abroad, training in demanding jobs, and even college functioning (Maddi & Khoshaba, 2005).

In addition, hardiness assessment and training programs have been developed and validated. Assessment of the hardy attitudes, hardy strategies, stressfulness, and relevant emotionality is now available on an internet website: www.HardinessInstitute.com. Taking the assessment test produces a comprehensive report concerning hardiness characteristics and stress resilience levels. The hardiness training procedure involves doing exercises that will enhance the hardy attitudes and hardy strategies. In particular, this approach provides the trainee with the existential courage, motivation, and strategies to enhance performance and health by turning stressful circumstances from potential disasters into growth opportunities. The training is guided by a technologically advanced workbook, which is widely used and has been translated into several foreign languages (Khoshaba & Maddi, 2004). There is growing evidence showing that hardy training facilitates performance and health (e.g. Maddi, Harvey, Khoshaba, Fazel, & Resurreccion, 2009).

Over the years, Maddi has received many honors and awards. Among them are (1) being President of APA Divisions 1 and 10, (2) being a Fulbright Scholar in Brazil, (3) citation by the California Psychological Association as a major influence in its members' development, (4) inclusion among the 630 memorable psychologists and psychiatrists in R. J. Corsini's *Encyclopedia of Psychology*, (5) Distinguished Wellness Lectureship by University of California and HealthNet, (6) Diplomate, American Board of Forensic Examiners, (7) RHR International Award for outstanding contributions to positive psychology, (8) hardiness featured on the APA website, (9) Henry A. Murray Award by APA Division of Personality and Social Psychology, (10) Disabilities Services Center Faculty Recognition Award, University of California, Irvine, and (11) the American Psychological Foundation's 2012 Gold Medal Award for Lifetime Contributions to Psychology in the Public Interest.

See Also

Coping
Individual Differences in Coping with Stress
Resiliency and Hardiness

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Julie K. Norem, Margaret Hamm Professor of Psychology at Wellesley College, was involved in the early development of the concept of defensive pessimism while she was in graduate school. Since then, she has been a leading researcher of and writer on the concept of defensive pessimism specifically, as well as a proponent of multifaceted and integrative approaches to understanding individual differences in goal pursuit and personality more generally (e.g. Norem, 2010). She attended the University of Chicago on a writing scholarship, and graduated with honors as a Behavioral Sciences major in 1982. She received her doctorate from the University of Michigan-Ann Arbor in 1987. Norem was an assistant professor at Northeastern University in Boston, MA, and then moved to Wellesley College in fall of 1992. Her publications include empirical research, theoretical papers, commentary, review chapters, an edited volume, and her 2001 book, *The Positive Power of Negative Thinking*. Her work has frequently been featured in the national and international media, including the *New York Times, The Washington Post, The Globe & Mail*, *The Atlantic*, *Buenivida, The Huffington Post*, National Public Radio, and local and national news programs.

She is also one of a handful of researchers engaged in public critique and discussion of the Positive Psychology (0389) movement as a cultural phenomenon. She has done extensive professional service, including stints as associate editor of *Journal for Research in Personality* and *Personality and Social Psychology Bulletin*, and as member-at-large for both the Society for Personality and Social Psychology and the Association for Research in Personality. She was elected President of the Association for Research in Personality in 2006, and joined the board of the Foundation for Personality and Social Psychology in 2015.

At the University of Michigan in the mid-1980s, several graduate students began working with advisor Nancy Cantor (0300) on the concept of defensive pessimism, which Cantor had been discussing with Darren Lehman, Caroline Showers, and Aaron Brower, among others. Defensive pessimism is a strategy that anxious people (0221) may use to manage their anxiety and prevent it from interfering with progress toward their goals. The strategy involves two components: lowering expectations (i.e. being pessimistic), and then thinking through all the

negative possible things that might happen. When anxious people use defensive pessimism, their focus shifts from thinking about how anxious they feel to thinking about how they might prevent the disasters they imagine. Over 30 years of research have shown that defensive pessimism is an effective strategy for those who are anxious; anxious individuals who use defensive pessimism typically perform better and feel better than anxious individuals who use other strategies. Moreover, if defensive pessimists try to be more optimistic or more cheerful, their performance typically suffers (0272) (see Norem, 2008, 2014, for reviews)

Norem's earliest study of defensive pessimism was inspired by discussion in social psychology of self-esteem protection strategies described as "illusory" and focused on overly optimistic self-evaluations and other positively biased cognitive processes (0234). There was growing consensus among social psychologists – expressed most comprehensively and influentially in Taylor & Brown (1988) – that these positive biases were ubiquitous (characteristic of all non-depressed individuals) and fundamental to mental health. Both casual observation and more systematic review of descriptions of how different successful individuals prepared for performance situations, however, suggested that there might be important individual differences among those who were non-depressed, mentally healthy and highly functioning. Norem and Cantor (1986) showed that defensive pessimists did not engage in the kinds of positive biases other researchers had identified (e.g. claiming more control over successful performance relative to less successful performance), and later research showed that the lack of optimism and positive thinking characteristic of defensive pessimists did not put them at risk for depression (e.g. Showers & Ruben, 1990).

Several of Norem's later studies were based on the idea that one way to understand how a strategy like defensive pessimism works is to design experimental manipulations that interfere with parts of that strategy, and then observe their effects on relevant outcomes (0104). Thus, in a series of studies using different subject populations, tasks and manipulations, Norem and her colleagues were able to show that interfering with the negative expectations, the negative mood or the negative thinking of defensive pessimists leads to poorer performance (e.g. Norem & Illingworth, 1993). Defensive pessimists perform better and feel better when they use their preferred strategy. Those studies and others also show that individuals who use more optimistic strategies show performance decrements in some situations too: optimism does not confer invulnerability to context. Both those using optimistic strategies and those using defensive pessimism experience their best outcomes in contexts and situations that allow for or encourage their preferred strategies.

Norem's approach to the study of defensive pessimism has been at odds with several popular theoretical and research perspectives over the years. Her focus on individual differences in the paths that led to well-being has contrasted with the emphasis on positive thinking and optimism that were important foundations for the early growth of Positive Psychology. That focus is also generally incongruent with approaches to goal pursuit that identify effective vs. ineffective strategies, without consideration of the extent to which strategies are integrated with other aspects of personality, relevant to goals that may be specific to individuals, and varying in effectiveness depending on the context of goal pursuit.

Her insistence on the importance of social cognitive units of personality further contrasts with the dominance of trait approaches, particularly the Five Factor Model and Big Five perspectives, in personality psychology (Cantor, Zirkel, & Norem, 1993; Norem, 2010). Research on defensive pessimism reveals some of the limits to an exclusive focus on broad

traits; broad traits do not show differences between anxious individuals who use defensive pessimism and anxious individuals who do not, nor do trait approaches provide theoretical process descriptions that can account for the performance and other outcomes differences demonstrated by research on defensive pessimism.

Exploring the costs and benefits of different strategies as a function of who uses them in what contexts has led Norem to consider ways in which cultural sensibilities influence our assumptions about "good" strategies. The growth of culturally informed research in psychology felicitously coincided with, informed, and has been influenced by Norem's work on defensive pessimism. Several researchers from China, Korea, Japan, Singapore and other countries have built on work by Norem and Chang (2001) to show that the consequences of defensive pessimism and other strategies are influenced by cultural context: a 2008 review of 30 studies of defensive pessimism done by researchers in China is just one example of the influence Norem's work has had on psychology internationally (Su & Zhang, 2008). Ample evidence from multiple sources and contexts demonstrates that the American emphasis on optimistic strategies is not universal, and illustrates the ways in which the advantages of defensive pessimism may be augmented in family and cultural contexts that place more value on personal modesty and moderation than is typical in the United States.

Norem's influence in personality and social psychology stems from her research on defensive pessimism, her advocacy for integrative, contextually sensitive approaches to the study of personality and individual differences, and her service across a variety of roles. Norem has highlighted how simplistic models of personality – be they focused on individual traits or on emphasizing the positive outcomes of positive thinking – obfuscate rather than reveal much of what is interesting about individual personality.

See Also

Anxiety
Big Five
Cognitive Methods in Personality Research
Defense Mechanism
Optimism/Positivism vs Pessimism/Negativism
Personality and Positive Psychology
Personality and Well-Being
Social Intelligence

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Robert J. Plomin

James Kean

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Background

Robert J. Plomin was born February 20, 1948 in Chicago, Illinois. At age 10, Plomin discovered an illustrated textbook on evolution at the library and decided to borrow it and show it to his class at school. Owing to the quality of the teaching, Plomin and his sister were enrolled in a Catholic school over the local public school, despite not being religious. Although this school had a significant impact on his subsequent education, when a young Robert presented the book on evolution to his class, he was promptly suspended. Plomin attributes this moment in his life to his current atheism. Despite this, his exemplary scholastic record provided him with direct entry into high school (DePaul Academy) and further still to the university (DePaul University) both on fully paid scholarships. At a young age, Plomin became the assistant to the research director at an educational association. During his time at DePaul University in Chicago Plomin studied philosophy, but due to the enigmatic nature of philosophy, Plomin became dissatisfied and looked for topics that provided tangible answers. He soon transitioned into psychology, completing his BA in Psychology in 1970. He developed his love of behavioral genetics at the University of Texas during his PhD under the tutelage of renowned personality psychologist Professor Emeritus Arnold Buss.

Plomin completed his PhD in 1974, publishing a book a year later with Professor Buss on the temperament theory of personality providing evidence from evolution and genetics. This work spawned two measures of temperament: *the Colorado Child Temperament Inventory* and the *EAS (emotionality, adaptability sociability) Survey for Children*. In 1974, Plomin accepted a position at the University of Boulder in Colorado within the Institute for Behavioral Genetics and the Department of Psychology. During his time at Boulder, Plomin produced over 40 research publications investigating behavioral genetics, intelligence, and behavior as well as beginning his integral work into the gene–environment interactions of twin studies. It was at Boulder that Plomin worked with colleagues Gerald McClearn and John DeFries, on a genetics textbook that was published in 1975, and continues today in now its seventh edition – *Behavioral Genetics: A Primer*. The same year saw Plomin and

DeFries begin the Colorado Adoption Project (CAP) following both adopted and non-adopted children, which continues to monitor participants today. In 1982, Plomin was made professor at Boulder.

In 1984, Plomin moved to the Center for Advanced Study in the Behavioral Sciences in Palo Alto, then to Pennsylvania State University in 1986 to join the Department of Human Development and Family Studies. It was here he created the Center for Developmental and Health Genetics, an interdisciplinary center with fellow behavioral geneticist Professor Gerald McClearn. During this time, Robert married Judith Dunn, a British psychologist and academic. Plomin, then a Medical Research Council (MRC) Research Professor, and Dunn moved to England to the Institute of Psychiatry, Psychology, and Neuroscience within King's College, London where they established the Social Genetic and Developmental Psychiatry (SGDP) center with Sir Michael Rutter, professor of Child Psychiatry. Then in 1995, Plomin initiated what would become one of the world's largest longitudinal twin study in the world, the Twins Early Development Study (TEDS). The sample in TEDS includes over 10,000 pairs of twins between 1994 and 1996 who have been followed up for 25 years.

Major Contribution – The Twins Early Development Study (TEDS) and Behavioral Genetics

Early in his career, Robert Plomin's main interest was to understand how twins changed over their lifetime within the same family unit and when they were adopted. The TEDS recruited 15,000 pairs of identical and non-identical twins with 13,000 remaining in the study. The primary emphasis of the research is to illustrate why people differ in terms of their cognitive, behavioral and learning abilities. This research has demonstrated the importance of genetic factors in the mediation of the environment at the individual level. The field of behavioral genetics has grown exponentially over the last 50 years, with 20,000 publications occurring between 2010 and 2014 alone. The primary outcomes for the study are to understand the genetic links to cognitive abilities and disabilities and to what extent the individual's environment influences these genetic expressions; what factors contribute to the stability or change of these abilities and how these influence other abilities the individual may have; and finally, to identify the specific genes involved in these similarities and differences looking at genetic mutations (single nucleotide polymorphisms; SNPs) and any associations they may have to abilities or disabilities.

In 2016, Plomin and colleagues published the 10 most replicated findings from the study of behavioral genetics. Among these, Plomin states that all psychological traits demonstrate significant genetic influence and replication. The finding outlines that there has yet to be a "single adequately powered study reporting nonsignificant heritability." Additionally, although traits are highly heritable, they are by no means constant. That is, although a specific trait may have high heritability that does not mean it will necessarily present in every individual of that genetic line. In another replication, Plomin and colleagues report that traits must be the result of many genes that produce small effects. This replicated finding makes understanding inherited traits significantly difficult due to the fact that so many genetic variants are at play. Personality traits have been shown to be mediated genetically, that is, whenever two behavioral traits show a phenotypic correlation, the genetic contribution is significant. One unusual finding is that the heritability for intelligence increases throughout development. That is, as a

person ages, more genetic influences begin to take shape and therefore have greater influence. This is a unique finding as this does not occur with other traits. Plomin goes on to note that environmental measures and psychological traits are significantly mediated by genetics and that most environmental experiences for children of the same family will not produce the same effect for each child. Finally, Plomin describes that people who may have inherited the genetic code for a disorder would be at a genetic extreme, should they present with and be diagnosed with that disorder. Others may inherit the same genes, but not present with a diagnosis.

Other Notable Works

Following the publication of the book *The Bell Curve*, Plomin was one of 52 signatories invited to sign off on issues related to intelligence research in an editorial for the *Wall Street Journal* in 1994.

Acknowledgments and Awards

In a review of the second edition of Plomin, DeFries, and McClearn's book *Behavioral Genetics: A Primer*, Professor Hans Eysenck compliments the updated text's ability to guide the reader through the biological and statistical concepts as well as providing insights into genes, chromosomes, chromosomal abnormalities, and the mechanisms underlying heredity and behavior. Although his review praises the work, he criticizes the lack of information in the areas of criminal behavior and Big 5 personality traits, that he feels required greater dedication. Despite this, the book impressed the eminent professor, who wrote "…these and other criticisms cannot dispute the value of this book as the best available introduction to behavioral genetics."

   In 2002, the Behavior Genetics Association awarded Plomin the Dobzhansky Memorial Award for a Lifetime of Outstanding Scholarship in Behavior Genetics. He was awarded the William James Fellow Award by the Association for Psychological Science in 2004. In 2005, he was elected a Fellow of the British Academy (FBA), the United Kingdom's national academy for humanities and social sciences. In 2011, he received the Lifetime Achievement Award of the International Society for Intelligence Research. In 2017, Plomin received the APA Award for Distinguished Scientific Contributions. He has been president of the Behavior Genetics Association and is ranked among the 100 most eminent psychologists in the history of science.

Conclusion: Personality and Individual Differences

Robert Plomin's ongoing work with behavioral genetics is the largest contribution to the study of genetic inheritance in personality to date. The consistent findings from investigations into the area have established Plomin's behavioral genetics research as one of the largest evidence-based personality concepts in psychology. The TEDS longitudinal study continues to run after 25 years, providing vast quantities of data and critical insight into the field of personality and individual differences.

See Also

Behavioral Genetics
Behavioral Genetics, General Features and Methodological Issues
Gene–Environment Interaction
Genetic Bases of Personality
Twin Studies and Personality
Twin Studies in Personality Research

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Julian B. Rotter

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Julian B. Rotter was born in 1916 in Brooklyn, New York. During his youth, he spent a considerable amount of time in the Avenue J Library in Brooklyn, demonstrating a particular fondness for fiction. During his junior year in high school, while searching the library stacks for something new to read, he came across some books by Freud and Adler (Rotter, 1982, 1993). He became so engrossed with his newfound interest in psychoanalytical thought that by his senior year, he was interpreting the dreams of his high school friends. As a senior in high school, he wrote a thesis titled "Why We Make Mistakes" and dreamed of having a career in psychology.

Rotter pursued psychology during his undergraduate years at Brooklyn College, but he took it only as an elective. Because the climate of the Great Depression offered few career opportunities in psychology and the college did not have a formal psychology department, he could not major in psychology. Instead, Rotter selected chemistry, a more practical major that promised a greater likelihood of a job after college. Even so, he took more courses in psychology than chemistry. One of Rotter's teachers was Solomon Ash, whose classic research on conformity and group influence would eventually make him an influential social psychologist. In addition to taking courses from Ash, Rotter had the opportunity to meet Alfred Adler. In his junior year at Brooklyn College, Rotter learned that Adler was teaching at the Long Island College of Medicine, where he was a professor of medical psychology. Rotter attended some of Adler's lectures and several of his clinical demonstrations. While still in college, Rotter got to know Adler personally. He attended monthly meetings of the Society of Individual Psychology at Adler's home, where Adler spoke on individual psychology. In response to Adler's passionate lectures, the young Rotter became even more convinced that his future would be in psychology. Although Adler's influence on Rotter had begun when he read Adler's books during high school, it did not end with these lectures. Some 40 years later, Rotter stated that Adler had been "a strong influence on my thinking. I was and continue to be impressed by his insights into human nature" (Rotter, 1982, p. 1).

Rotter graduated from Brooklyn College in 1937. Inspired by Adler and encouraged by two of his undergraduate professors, Rotter decided to pursue graduate study in psychology at the University of Iowa, in Iowa City, Iowa. He arrived at the University of Iowa with enough money to last a few weeks. However, the chair of the psychology department was able to obtain a research assistantship for Rotter, giving him enough money to survive. At the University of Iowa, he took a seminar in social psychology taught by the noted and very influential social psychologist Kurt Lewin. Lewin was famous for his work on how people use personal and environmental factors to determine their perceptions and reactions to the world around them. The critical importance of personal and situational variables in the interpretation of events and as determinants of action was to become a central feature of Rotter's own theory of personality.

In 1938, Rotter received his MA and moved to Massachusetts to attend Worcester State Hospital, at that time a major training and research center in clinical psychology. At Worcester, he participated in one of the first ever internships in clinical psychology; he also met Clara Barnes, his future wife. Hoping to be one of the first clinical psychologists, Rotter left Worcester to attend Indiana University, where in 1941 he received his PhD in clinical psychology; he was married to Clara that same year.

After receiving his PhD, Rotter wanted an academic position. But he soon discovered that the warnings he had been given since his days at Brooklyn College about Jews not being able to obtain academic jobs, regardless of their credentials, were now becoming reality. Rotter accepted a position at Norwich State Hospital as a clinical psychologist. At Norwich, his responsibilities included the training of interns and assistants from the University of Connecticut and Wesleyan University. In 1942, Rotter was drafted into the army. He spent the next three years as a military psychologist, where he served as a consultant, helped with officer candidate selection, and developed a method for reducing the incidence of absence without leave (AWOL).

After his military service, Rotter returned briefly to Norwich State Hospital. But he soon discovered that the shortage of clinical psychologists after World War II created a need for his services sufficient to overcome the anti-Semitism that had once prevented him from obtaining an academic position. Rotter had many universities from which to select. He soon accepted a position at Ohio State University in the clinical psychology program, from which Carl Rogers had recently departed. Like Rogers before him, Rotter combined his emphasis on scientific research within the clinical setting to help build a clinical psychology program rated among the best in the country. Rotter became the director of the clinical psychology program in 1951.

During his stay at Ohio State University, Rotter formulated and, along with a group of outstanding graduate students, tested and developed the basic framework of his social learning theory. The culmination of this work was his classic textbook titled *Social Learning and Clinical Psychology* (Rotter, 1954). In addition, it was during this period that he began a program of research investigating his most famous contribution to personality psychology – the construction and validation of the Internal-External Control of Reinforcement Scale (I-E Scale) (Rotter, 1966). The I-E Scale is designed to measure the extent to which an individual holds the generalized expectancy that reinforcements in life are controlled by internal factors (e.g. what you do) or external factors (e.g. luck, fate, or the power of others). People who tend to express a belief

reflecting a generalized expectancy of an internal locus of control are referred to as "internals," while those who express an external locus of control are referred to as "externals" (Rotter, 1966, 1975).

Although he was very happy and extremely productive at Ohio State, Rotter was quite disturbed by the political climate created in the Midwest by the Communist-baiting Senator Joe McCarthy. As a result, Rotter left Ohio State in 1963 and moved to the University of Connecticut, where he continued to refine his theory, conduct research, supervise the training of clinical psychology graduate students, and see clients in his private practice as a clinical psychologist. A significant characteristic of Rotter's distinguished career had been his emphasis on training clinical psychologists to be both researchers and practicing clinicians. This is a philosophy Rotter maintained during his 50 years as a clinical psychologist.

Rotter retired in 1987 from his faculty position at the University of Connecticut. But true to his lifelong philosophy as a scientist-practitioner, Rotter continued to teach and supervise the research and clinical training of graduate students at the University of Connecticut. In addition, throughout his career, Rotter had been active in many professional associations, serving as president of the Eastern Psychological Association, as well as president of Division 8: Personality and Social Psychology and Division 12: Clinical Psychology of the American Psychological Association (APA). He also served as a member of the Educational and Training Board of the APA, the APA Council, and the United States Public Health Service Training Committee. In recognition of his many significant contributions throughout his lifetime of work, Rotter received the prestigious APA Distinguished Scientific Contribution Award in 1988 and, in the following year, the Distinguished Contribution to Clinical Training Award from the Council of University Directors of Clinical Psychology.

In addition to his many important contributions to the study of personality and clinical psychology noted previously, some of his other significant publications include *Clinical Psychology* (Rotter, 1971), *The Development and Application of Social Learning Theory: Selected Papers* (Rotter 1982), *Applications of a Social Learning Theory of Personality* (Rotter, Chance, & Phares, 1972), and *Personality* (Rotter & Hochreich, 1975). In addition to the I-E Scale, Rotter's contributions to the development of other measures of personality include the Rotter Incomplete Sentences Blank Manual (Rotter & Rafferty, 1950) and the Interpersonal Trust Scale (Rotter, 1967).

On January 6, 2014, Rotter died at the age of 97 at his home in Mansfield, Connecticut. More information on Rotter's life can be found in a chapter he wrote titled "Expectancies," which appears in *The History of Clinical Psychology in Autobiography* (Walker, 1993).

See Also

Alfred Adler
Carl Rogers
Clinical Applications of Cognitive-Behavioral Theory of Personality
Locus of Control
Locus of Control, Personality Correlates of

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Mark Savickas

Annamaria Di Fabio[1] and Jacobus Gideon Maree[2]

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Savickas has established himself as the global leader in research in the field of Career Counseling. His research has been published in every major international journal in the field of Counseling Psychology, he is by far the most prolific and significant author in his field and he has published a vast array of ground-breaking scholarly contributions in all the leading international journals in the field of Counseling Psychology. His stature in the field of Counseling Psychology is evidenced by his election to the office of President, Counseling Psychology Division, International Association for Applied Psychology (IAAP) but also to multiple other positions.

Our opening outline sets the framework for some of Savickas' more specific research accomplishments, which will now be delineated.

Mark L. Savickas is professor of family and community medicine and chair emeritus of the Behavioral Sciences Department at the Northeast Ohio Medical College in the United States. He earned his doctorate from Kent State University in 1975, before licensure requirements dictated the curriculum. Based at Kent State University, he was able to visit and study with leaders of vocational psychology such as Donald E. Super, John O. Crites, and John L. Holland rather than just reading their work. Super and Holland, who worked in different paradigms, sponsored his dissertation research under the direction of Glenn A. Saltzman. That study investigated the hypothesis that the developmental construct of career choice readiness related highly to the personality construct of consistency. The project set Savickas on a career path in which integration of theories and convergence of constructs play a prominent role. He repeatedly researched the relation between the two dominant and most useful models of vocational behavior, namely, the differential psychology model of John L. Holland with the developmental psychology model of Donald E. Super. This research and reflection produced 10 authored or edited books (many of which are generally regarded as classics in the field), 40 book chapters, 100 articles, three psychometric inventories, and 175 papers at conferences.

Savickas has received the highest awards given by the Society for Counseling Psychology, the Society of Vocational Psychology, the European Society for Vocational Designing and Career Counseling, and the National Career Development Association. He is a fellow in the Association for Psychological Science, the American Counseling Association, the National Career Development Association, and the Clinical Psychology Division in the American Psychological Association. Savickas served three-year terms as a visiting professor in the Department of Organizational Behavior in the School of Business at Loughborough University, United Kingdom; visiting professor at the Vrije Universiteit Brussels (Belgium), and visiting professor in the Faculty of Education and Psychology at the University of Lisbon in Portugal. Moreover, he received honorary doctorates from the University of Lisbon (Portugal) and the University of Pretoria (South Africa). These awards testify to and celebrate his single-handed reshaping of the face of career psychology in our time (Maree, 2013, 2016, 2019).

Savickas has presented more than 500 lectures and workshops to professional groups in 16 countries. To share teaching materials such as tests and videos, he set up a website, Vocopher.com, as a collaboratory for faculty who teach vocational psychology. As an adjunct professor at Kent State University since 1975, he has taught career counseling to 5,000 students and sponsored the doctoral dissertations of 32 students. In addition, he has had teaching appointments in the Psychology Departments at Vrije University (Belgium) and the University of Lisbon (Portugal), in the Department of Organizational Behavior at Loughborough University (England), and the Department of Educational Psychology at the University of Pretoria (South Africa).

From 1991 to 1998, Savickas served as editor-in-chief of *Career Development Quarterly* and from 1999 to 2016 he served as editor-in-chief for the *Journal of Vocational Behavior*. During those years, he also served on 22 editorial boards for journals in 12 countries. He used these posts to further the careers of new professionals seeking to publish their first manuscripts as well as craft special issues to highlight problems and possibilities in vocational, industrial, and organizational psychology. He also leveraged his positions in professional organizations to foster the career development of new professionals and assistant professors. In 1987 he founded the Vocational Psychology and Career Intervention Special interest Group (SIG) in the Counseling Psychology Division (17) of the American Psychological Association, leading it for nine years until it became the Society for Vocational Psychology. Under his leadership from 1990 to 1995 that group sponsored seminars in Belgium, Canada, and Portugal.

Savickas served in 2003 as founding Vice-President for the Counseling Psychology Division (16) and from 2010 to 2014 served the Division as President. One of his presidential initiatives was try to reunite the two wings of vocational psychology, namely, researchers who study adolescent career development and researchers who study adult career development. As part of this effort, Kerr Inkson and Savickas (2012) edited the four-volume set entitled *Major Works in Career Studies* that contained 79 articles selected because of their exceptional impact and influence and written by members of the two groups.

During the first half of his career, Savickas studied individual differences in vocational behavior, always attempting to integrate Super's model of readiness with Holland's model of resemblance. He examined the convergence of career development variables to individual difference variables such as decidedness, interests, identity, and time perspective.

At midcareer, he took a major step by organizing with Robert W. Lent (1994), the first Vocational SIG conference on the topic of Convergence in Career Theories. Slowly, his own work shifted from integrating different theories to unifying the segments within one theory. His mentor Super had near the end of his career published a life-span, life space model with three major segments – individual differences, developmental tasks, and self-concept. Super hoped to someday integrate these segmental theories using a superordinate construct such as learning. Focusing on Super's goal of segment integration, Savickas eventually used the epistemology of social constructionism to craft an integration which he called career construction theory. A central part of that theory resulted from shifting focus on career maturity as an organismic variable that unfolded over time to career adaptability as a contextual variable responding to vocational development tasks, occupational transitions, and work traumas.

Following a suggestion by Super and Knasel, Savickas (1997) wrote an influential article (cited by 587 scholars) proposing the construct of career adaptability as an integrative construct for bridging theory segments. Inspired by McAdam's (1995) tripartite model of personality, Savickas reshaped the theory segments to describe vocational behavior from the three perspectives on the individual as object, subject, and project. Viewing vocational behavior from these three perspectives explains the interpretive and interpersonal process through which individuals construct themselves as actors, impose direction on their vocational behavior as agents, and make meaning of their careers as authors. To unify the three perspectives, he used the epistemology of social constructionism, thereby crafting the theory of career construction (cf., Savickas, 2005).

Within the theory of career construction, Savickas articulated a model of adaptation that coincided with its three perspectives. The model begins with the actor who shows some degree of readiness to adapt. Adaptivity or readiness denotes the personal characteristics of flexibility or willingness to meet transitions with fitting responses. However, adaptiveness is insufficient to support adapting behaviors; it must be accompanied by the agent's self-regulation resources to address the changing situation. Career construction theory refers to these psychosocial resources as adaptabilities with which to solve the unfamiliar, complex, and ill-defined problems presented by tasks, transitions, and traumas. Four key adaptabilities are concerned with the future, control of intentional vocational actions, curiosity about possible selves and occupational options, and confidence to deal with barriers. These adaptabilities condition the activities of adapting, that is, behavioral responses such as exploring, deciding, planning, and so on. The outcome of a cycle of adaptivity-adaptability-adapting is adaptation, operationally defined as success, satisfaction, and well-being (Maree, 2017, 2018).

There existed excellent measures to operationally define three parts of this model, but not for adaptability resources. Sponsored by Division 16, Savickas and his colleagues Maria Eduarda Duarte and Fred Leong organized a group of psychologists from 15 countries to meet at a series of international conferences to craft a psychometric measure of career adaptability. The *Career Adapt-Abilities Scale* (*CAAS*) was developed jointly by colleagues from across the globe and enabled international comparison yet also fit local contexts (cf., Leong & Walsh, 2012). The CAAS has been translated into 20 languages and is used extensively in research on vocational behavior and career development.

Together with Van Esbroeck from Vrijie University in Brussels, Savickas organized the life-design international research group with members from seven European countries. Working collaboratively, they produced an influential statement of life design as third paradigm for career intervention rooted in social constructionism (Savickas et al., 2009). This highly cited article has been translated into six languages. Savickas then published a book on life-design counseling (2011), an instructional manual for learning life-design counseling (2015), a client workbook (Savickas & Hartung, 2012), and demonstration DVDs (2009). Throughout these materials, he maintains the distinction between career construction as a theory of vocational behavior and life designing as a counseling discourse.

Savickas' scholarly efforts can best be described as pioneering; the Olympic gold medal standard in the field of career counseling. Savickas' article entitled "Career counseling in the postmodern era" (Savickas, 1993) (cited by 324 scholars) caused a shift in the tectonic plates of career counseling. It helped to change the course of career counseling and was followed by numerous other ground-breaking publications from his pen. In 2011, and again in 2019, Savickas brought together his insights and contributions in a single publication, entitled *Career counseling* (editions one and two) (Savickas, 2011, 2019), which constitutes a benchmark for everyone writing on the subject. Savickas' greatest achievement, though, is the fact that he has single-handedly liberated career counseling theorists and practitioners alike from the shackles imposed by an overly positivist approach in the twentieth century – an approach which left little room for consideration of issues such as subjectivity, personal growth, discovery and improving the sense of self during career construction.

This biography represents a very small token of the love and respect for Savickas as well as our gratitude to a very rare, special and once-in-a-lifetime maestro, who exemplifies the finest possible blend of genuine giftedness, love for others, and scholarliness. Savickas deserves the highest award and accolades the world can bestow upon him.

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Dean Keith Simonton

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Dean Keith Simonton, who received his PhD in Social Psychology from Harvard University, is a Distinguished Professor Emeritus at the University of California, Davis. His highly interdisciplinary research centers on the study of genius, creativity, leadership, and esthetics. Through his work, we are now better able to understand to what extent a myriad of factors contribute to greatness in the sciences, arts, and politics. When asked why he dedicated his work to the study of greatness, Simonton recounted a vivid childhood memory where his parents purchased a set of encyclopedias. He remembered browsing excitedly through the volumes and wondering how anyone got to be featured there. This early experience led to a life-long interest in understanding what sets apart people who display genius-level accomplishments. Decades later, Simonton wrote *Great Psychologists and Their Times* (2002a). This was the first compilation of research and theory meant to elucidate the factors that contribute to success as a psychologist. Because one of the best ways to honor a scientist's contributions is applying them, this biography will follow the structure of the above-mentioned book, and will draw inspiration from Simonton's research findings and methods to conduct a case study of his own accomplishments.

Output and Impact on the Field

One of Simonton's major contributions to the field was introducing a new perspective on creativity where the creative product was the ultimate criterion of whether the process or the person could be considered creative (Simonton, 2003). This perspective is highly advantageous because creativity can be measured "in vivo" by conducting naturalistic and behavioral observations, and thus, the creative process and person can be better understood in a real-world context (Simonton, 2004). To achieve this, Simonton has contributed significant methodological innovations to the field of historiometrics. Specifically, he devised a wide range of at-a-distance methods to extract measures of greatness and related factors from biographical and historical materials.

Following Simonton's theory, the mark of a great scientist is a high level of productivity, and one way to measure productivity in science is by counting publications (Simonton, 2004). As of January, 2020, Simonton had 574 scientific publications, which places him at the top of the productivity distribution of eminent psychologists, and ahead of prominent figures from the history of psychology, such as Wilhelm Wundt (503 publications), Sigmund Freud (330 publications), and William James (307 publications). Productivity is an important marker of scientific achievement because it is related to increased research quality and a higher impact on the field (Simonton, 1992). This idea holds in Simonton's case, where his productivity has clearly been accompanied by a high level of research quality and impact.

The first and simplest way to measure research quality and impact on the field is to count citations. So far, Simonton's work has accumulated 27,250 citations, with a single year maximum of 1,916 citations in 2014.

Another way to measure impact on the field is to look at the type of contribution. A study of eminent psychologists found that books represent superior contributions because they claim a disproportionately high number of citations, presumably because they have some integrative advantages over journal articles (Simonton, 1992). Simonton has published 14 books so far, several of which are among his most cited works, with more than 700 citations each. Furthermore, his works have been translated in eleven different languages, thus reflecting Simonton's international acclaim.

A third way to measure impact on the field is to evaluate a researcher's record of awards and achievements. Among his research awards are the William James Book Award, the Rudolf Arnheim Award for Outstanding Achievement in Psychology and the Arts, and the Henry A. Murray Award. Simonton has also received numerous teaching awards, among which is the Robert S. Daniel Award for Four Year College/University Teaching. Last but not least, he was elected president of three scientific societies (Division 1 of APA, Division 10 of APA, and the International Association of Empirical Esthetics) and fellow of 17 scientific societies.

A fourth way to measure impact on the field is to conduct a qualitative analysis of someone's research contributions. In addition to being internationally renowned as the modern proponent of the field of historiometrics, Simonton has made significant contributions in general psychology, personality psychology, developmental psychology, quantitative psychology, and cross-cultural psychology, and published in journals outside of psychology in fields such as political science, physics, biology, and music. His research shows both theoretical and methodological breadth. Regarding theoretical breadth, Simonton has drawn inspiration from Darwin's theories of natural and sexual selection, Tolstoy's "Zeitgeist" theory of leadership, and Kant's definition of genius. He developed several major theories of creativity, including the blind variation and selective retention theory of creativity (Simonton, 2011) and a combinatorial model of the creative process (Simonton, 1997). He also made major contributions to the fields of political leadership (Simonton, 1988), cross-cultural psychology (Simonton, 1975), and behavioral genetics (Simonton, 1999). Regarding methodological breadth, Simonton's work includes single-case studies either qualitative or quantitative, multiple-case inquiries using individual or aggregate data, thematic and computerized content analyses, Monte Carlo simulations, mathematical models, and laboratory experiments. Although Simonton's work shows great theoretical and methodological breadth, it is also highly coherent, centering on greatness and genius. Achieving such a fine balance between

breadth and depth is yet another mark of highly successful scientists (Simonton, 1992). Thus, we can conclude based on Simonton's total creative output and impact that he is indeed an eminent psychologist. But how has his creative output changed over the years?

Creative Output Over the Lifespan

Simonton has devoted a significant portion of his research to understanding the development of creativity over the lifespan. How does creative output change over time and what does that reveal about the creative process? Using biographical data, Simonton has examined the creative life cycles or career trajectories of writers, composers, scientists, and political leaders. In doing so, Simonton (1997) has developed a combinatorial model of the creative process, whereby creative output is a function of initial creative potential, ideation (i.e. the generation of ideational variation), elaboration (i.e. the conversion of these ideas into finished works), and time (i.e. how long one has operated in a certain career). This model can be expressed as the following equation:

$$p(t) = c\left(e^{-at} - e^{-bt}\right),$$

where $p(t)$ represents the publication rate as a function of time, $c = abm/(b-a)$, where m is the initial creative potential, a is the ideation rate, b is the elaboration rate, e is the exponential constant (2.718), and t is career age. This model has been shown to fit a large number of career trajectories across disciplines and it renders a curvilinear function, where the creative person peaks in their late 30s or early 40s (i.e. 10–20 years into their career), after which their creative productivity steadily declines (Simonton, 1997). This is a highly generative model because it permits the testing of numerous hypotheses regarding the typical age curve, contrasts across disciplines, or even specific case studies and their comparison with the nomothetic baseline. Thus, with the help of this model we may ask how Simonton's
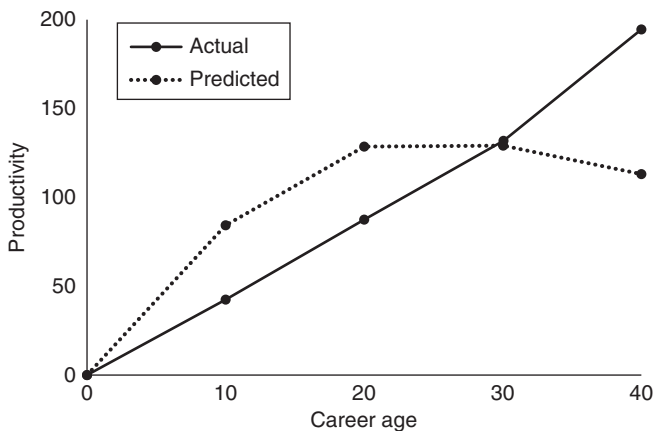
Figure 1 Simonton's creative output over the lifespan. "Productivity" represents the total number of publications across a given career decade. "Career age" represents the number of years since Simonton's first publication.

own career trajectory fits with the nomothetic baseline. Figure 1 addresses this question. The solid line represents Simonton's actual creative productivity, split by four consecutive career decades. The dotted line represents the nomothetic prediction made by the model for a person of similar initial creative potential as Simonton. As seen, Simonton's career trajectory departs significantly from the baseline. Specifically, he shows no signs of slowing down as time goes on, his creative output in his fourth career decade being almost twice the predicted amount. To explain his incredible productivity and unusual career trajectory, we must investigate his personal characteristics and work style, thus shifting focus from the creative product and process to the creative person.

Personal Characteristics

Extensive research (Simonton, 2004) suggests that highly creative scientists are ambitious, show a strong interest in science, read voraciously early on, and are high in openness to experience showing a broad range of hobbies and activities. Simonton fits this profile perfectly. His highly ambitious disposition pushed him through life and helped him refuse to conform to people's expectations and break all norms (Simonton, 2002b). For instance, in high school, one counselor tried to discourage Simonton from signing up for college-preparatory courses because of his socio-economic background. Despite this, Simonton not only ended up pursuing college, but he also got a full scholarship based on his many awards received in high school for science projects. Later on, he pursued a doctoral degree at Harvard, where he also got a full scholarship from the National Science Foundation based on his scientific merit. Besides his early scientific activities, which ranged from physics and chemistry to biology and history, Simonton also read voraciously. One particular story stands out from Simonton's teen years, when he spent all his money from a job at a car wash to purchase the anthology *Great Books of the Western World* (Hutchins, 1952). Furthermore, Simonton pursued numerous and widely varied hobbies, ranging from playing guitar in rock groups, to making art, playing high school football, and writing poetry. His interests in art, music, and poetry can still be seen today in his research on Picasso's art, Beethoven's symphonies, and Shakespeare's sonnets.

Finally, Simonton's work style is characteristic of highly creative and successful scientists. When asked what the secret of his productivity was, he reported having a "network of enterprises" (i.e. working on multiple projects simultaneously). This work style presumes that a researcher pursues a variety of projects that are in various states of progress. The advantage is that one always has something to work on and one can switch the type of task or project when reaching a roadblock and thus make most efficient use of time. In addition, people who use this work style often benefit from cross-talk among the various projects by getting inspiration from one project to the other even when they seem unrelated. This work style might be responsible for Simonton's continued creativity and productivity throughout his career span.

Having evaluated the creative product, the creative process, and the creative person in this brief biography, using theory and methods borrowed from Simonton's work on highly successful scientists, the inevitable conclusion is that Simonton himself would make an excellent participant in his studies of great psychologists.

See Also

Creativity
Creativity, Assessment of
Creativity in the Workplace

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Marvin Zuckerman

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Background

Marvin Zuckerman was born on March 21, 1928 in Chicago, Illinois to Eli and Sophia Zuckerman. He is best known for his work on the psychobiological basis for human personality, sensation seeking, sensory deprivation and mood state measurement. One of his earliest experiences with psychology was during his high school days, when Zuckerman taught himself graphology, the study of handwriting to infer someone's individual character. Using a textbook from the library for reference, he would acquire pieces of writing from family and friends and make character assessments of their personality. Zuckerman graduated high school at the age of 16 and began his college life at the University of Kentucky at the behest of his father despite his own desire to join the Navy. During his time at Kentucky, he was exposed to the works of Sigmund Freud and began to interpret the latent content of his own dreams. However, once he was 18, Zuckerman joined the peacetime army. Unfortunately (or not), this was short-lived and after a year at a garrison in Texas due to the war being declared over, he returned to college.

In 1949, Zuckerman received his Bachelor's degree from New York University with ambitions of becoming a writer through his studies in journalism. As he began his postgraduate studies, Zuckerman turned his attention to medicine with intentions to pursue psychiatry but was drawn to one of the first clinical psychology programs that NYU offered. During this time he worked as a psychology intern at Wayne County General Hospital (1951–1952), and after completing his PhD in clinical psychology, he worked as a clinical psychologist at Norwich State Hospital (1953–1954) and then at Larue D. Carter Memorial Hospital (1954–1956). In 1956, Zuckerman was offered the position of assistant professor of psychology and began a research associate position at the Institute for Psychiatric Research within the Indiana University Medical Center, where he studied anxiety and sensory deprivation. This work would lead him to the development of his general theory of sensation seeking and the psychobiological explanations for individual differences in its expression. In 1960, Zuckerman was given the role of assistant professor of psychology at Booklyn College and

then as an associate professor of psychology at Adelphi University. In 1963, Zuckerman became a research associate at the Albert Einstein Medical Center in Philadelphia within the Department of Endocrinology and Human Reproduction. Zuckerman then moved to the University of Delaware in 1969 as an associate professor, but it was not long before he was offered a professorship in psychology in 1971. He became the program director for training in clinical psychology in 1976. He became a research fellow at the Institute for Advanced Study in the Netherlands in 1987 and was finally awarded the status of professor emeritus in 1993.

Over the years, Zuckerman would often spend his sabbaticals in England liaising with prominent personality psychologists Hans Eysenck, Robert Plomin, and Jeffrey Gray. Through collaborative factor analysis, the group arrived at the conclusion that impulsivity and sensation seeking formed a reliable personality dimension. Zuckerman remained at the University of Delaware until 2002 when he retired at the age of 74. Despite retirement, Zuckerman holds an appointment as a research professor at the Jefferson Medical University in Philadelphia where he continues to collaborate on research. Marvin Zuckerman continues to write journal articles, book chapters, and revisions of his 1991 book *Psychobiology of Personality*. During his married years, Marvin Zuckerman had two children, Steven and April, both of whom are family therapists.

Major Contribution: Sensory Deprivation and the Theoretical Basis of Sensation Seeking

For 10 years, Marvin Zuckerman studied the effects of sensory deprivation (perceptual isolation) and its effects on visual and auditory perception. The investigations provide a psychobiological understanding of personality, citing visual and auditory hallucinations as key indicators for underlying neurological arousal. These National Institute of Mental Health (NIMH) funded research studies were supported by data from concurrent projects including West's (1962) sensory deprivation experiment reporting "the greater the level of arousal during reduced sensory input, the more vivid the hallucination." Zuckerman's *optimum level of arousal* hypothesis asserts that people with high levels of sensation seeking seek more stimulation to elevate their arousal to their individually ideal level. He reports that the reticular activating system (RAS), a network of neuronal fibers originating from the midbrain that project throughout the cerebral cortex and control arousal, requires greater stimulation in those who are sensation seeking. When this optimal level of arousal is not met, the individual may find the presenting experience unpleasant.

In 1964, following his work in sensory deprivation, Zuckerman created the *Sensation Seeking Scale* (*SSS*). It is made up of four subscales (comprising 10 items each) designed to measure how the psychological and biological mechanisms for personality interact. Using factor analysis, he defined the subscales within the scale as *Thrill and Adventure Seeking* (*TAS*), *Disinhibition* (*Dis*), *Experience Seeking* (*ES*), and *Boredom Susceptibility* (*BS*). Its current form (Form V; 1978) is the most widely used measure of sensation seeking to this day. A children's version was created in 1993 with varied subscales (*Thrill and Adventure Seeking*, *Drug and Alcohol Attitudes*, and *Social Disinhibition*) as was a shortened version of the scale (BSSS). This measure of a person's optimal arousal

level allowed greater insight into other distinct personality traits including neuroticism, antisocial behavior, and psychopathy.

Major Contribution: The Psychobiology of Personality (1979)

This book was written with a connectivist approach in an attempt to close the knowledge gap between psychologists and geneticists. Zuckerman comments that "Eysenck (1967) was an exemplar of the top-down approach and Gray (1982) is one for the bottom-up approach." And adds that he has written this and previous texts from the top-down approach. That is, describing the outward behavior and personality and relating it back to the underlying biological mechanisms. He remarks that phrenology (pseudoscientific correlations of skull shape and personality) set back the study of personality due to years of tenuously proposed psychobiological relationships. However, research into genetics and psychology prevailed and the synthesized field of study was eventually adopted by a number of prominent psychologists including Zuckerman. In the book, Zuckerman cites Plomin (1986), describing their investigation into what they called the three types of *genotype–environment correlation*. This is where a genetically inherited behavior is recognized and reinforced by the parents (*passive*), when the behavior of the child changes the environment the child is in (*evocative*), and where the child must seek out specific elements of the environment that match their genetic predisposition (*active*). Zuckerman dedicates much of the book to providing the evidence for these gene-environment correlations for each of the personality traits (and sub-traits) included in his alternative Big 5 personality questionnaire. His distinctive method of linking the psychology of personality to a biological mechanism has made his psychobiological personality theories essential reading for any practicing or prospective psychologists or psychiatrists.

Other Notable Works

Development of the Zuckerman Personality Questionnaire

Zuckerman developed what came to be known as *the alternative five model of personality*. It was created to replace the Five Factor Model of Personality, asserting that personality traits must demonstrate a rich biological foundation. Instead of the previously established factors of *Openness to experience*, *Conscientiousness*, *Extraversion*, *Agreeableness*, and *Neuroticism*, Zuckerman's original "Alternative Five" were *Neuroticism-anxiety*, *Aggression-hostility* vs *Social desirability*, *Impulsive sensation seeking*, *Sociability*, and *Activity*. Today this questionnaire is known as the *Zuckerman-Kuhlman Personality Questionnaire* (ZKPQ).

Acknowledgments and Awards

In 2004, a symposium on personality at the University of Delaware was held in recognition of Zuckerman's significant contribution to the field. In 2004, a book of essays was created by colleagues and experts in the field of personality in honor of his work in the field.

Conclusion: Personality and Individual Differences

Professor emeritus of psychology Marvin Zuckerman's contribution to the field of personality and the correlations to psychobiological mechanisms have demonstrated that sensation seeking is one of many core traits that can help explain human personality and individual differences. Sensation seeking is deemed to be independent of other major dimensions of personality. In a personality biography written by Zuckerman, he notes the particularly high heritability of the sensation seeking trait. He reports that the magnitude with which it is inherited means that it is not "… just a minor subtrait of personality, but one with a strong evolutionary-biological source." He goes on to comment that the biological basis of the trait is strongly associated with our human desire to explore new things in our environment. His work in the field of personality has allowed psychologists to gain a more complex picture of individual personality types at the behavioral and biological level.

See Also

Jeffrey A. Gray
John F. Kihlstrom
Robert J. Plomin

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Raymond B. Cattell

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Raymond B. Cattell, PhD, DSc, was born on March 20, 1905 in West Bromwich, a town in the West Midlands conurbation, England. He died on February 2, 1998 at his home in Honolulu, Hawaii, and is buried in Oahu in the Valley of the Temples. Cattell grew up in the coastal countryside of Devon, where he spent a great deal of time hiking, sailing, and exploring the sea coast and hills around Torquay (his first book documented these early adventures: *Under Sail through Red Devon*, 1937). Although Cattell's father was a self-taught engineer and inventor, no one in his family had attended university. However, Cattell's exceptional abilities, especially in the sciences, led him to his earning a scholarship first to the Torquay Boys' Grammar School (1915–1921), and then a county scholarship enabling him to complete a BSc degree (with first-class honors) in chemistry and physics at the University of London, which he finished in 1924, at only 19 years of age (Gillis, 2014).

Cattell was influenced by the tremendous intellectual and cultural upheaval in London after World War I, where he read and interacted with other young free thinkers, such as Bertrand Russell, George Bernard Shaw, H. G. Wells, and Aldous Huxley. In his hometown of Torquay, Cattell had seen with his own eyes the terrible human toll of World War I, as injured soldiers arrived on trains directly from the battlefields in France to the hospital near to his home. After much deep reflection, Cattell came to the conclusion that solutions to human problems might be found by applying the objective, rigorous tools of science to the new domain of psychology, and understanding more about personality and human nature. He was discouraged by what he found in the current psychology of the day, which was largely made up of experimental psychologists who studied limited physiological issues (e.g. Pavlov's classical conditioning studies), or philosophically - oriented theorists (such as Freud) who developed their own subjective theories based largely on their own clinical work with troubled, abnormal individuals.

In pursuing this goal, Cattell's study of the periodic table of chemical elements (first put forward by Medeleev in 1869) led him to the idea of similarly trying to discover and elucidate the underlying structures of human personality. He reasoned that human personality

must have underlying structural dimensions in the same way that the physical world has underlying elements such as hydrogen and oxygen, and that if these basic building blocks could be discovered and measured, they could be used to understand and predict a wide range of behaviors, such as creativity, leadership, altruism, or aggression.

Cattell was interested in the work of Charles Spearman who was, at that time, trying to develop the methods of factor analysis to discover the basic factors of human abilities. Cattell (1984) stated that, "On a cold and foggy London morning in 1924, I turned my back on the shining flasks and tubes of my well-equipped chemistry bench and walked over to Charles Spearman's laboratory to explore the promise of psychology." Thus, he enrolled as a doctoral candidate in psychology at King's College, London under the guidance of Francis Aveling (Child, 1998; Sheehy, 2004) – third President of the British Psychological Society (1926–1929). In 1932, while teaching at University College, Exeter, Cattell also obtained an MA degree in education from the University of London.

After receiving his PhD in 1929, and working for several years in non-research teaching and clinical positions, Cattell found that there was very little funding for research in England at that time. Thus, when, in 1936, he received an offer to work in a research laboratory at Columbia University under Edward Thorndike, he left his home country to move to the USA in order to follow his interest in pursuing research into human personality structure. Next, Cattell accepted the G. Stanley Hall Professorship at Clark University (Massachusetts), where he worked on developing objective measures of personality and intelligence (1938–1941). There, he clarified his theory of fluid versus crystallized intelligence, which he presented at the 1942 APA convention. While at Clark, Cattell was a recipient of an honorary Doctor of Science (DSc) degree from the University of London (1939). Subsequently, he was offered an academic post at Harvard University (1941–1945), where his thinking about personality was influenced by the stimulating environment of numerous creative personality psychologists, such as Henry Murray, Robert White and Gordon Allport. During World War II, Cattell worked as a civilian consultant to the Personnel Research Division, developing psychological tests to be used for the selection of officers.

In 1946, Cattell accepted the newly - created University of Illinois Distinguished Research Professorship, which allowed him to focus more on research. He was particularly interested in the University of Illinois because they were currently developing the first electronic mainframe computer (Illiac I), which would make it possible to carry out large-scale factor analyses (Cattell, 1984). Here, Cattell founded the Laboratory for Personality and Group Analysis and began a period of intense creativity and productivity. He invited gifted colleagues from around the world who also were excited about contributing to the new science of psychology. Together, they embarked on a comprehensive program of taxonomic research conducted over several decades (1946–1973), aimed at identifying and mapping the underlying dimensions of human personality structure. This expanded to include not only the mapping of the domain of normal personality, but also abnormal personality, cognitive abilities, motivation, vocational interests, and affect states. Cattell continued his research and writing for another five years in Colorado, followed by his appointment as an Honorary Professor at the University of Hawaii, commencing in 1978 at 73 years of age.

A description of this research can be found in several of Cattell's books such as: *The Description and Measurement of Personality* (1946), *Personality and Motivation Structure and Measurement* (1957), *Personality and Mood by Questionnaire* (1973). In these writings,

Cattell described a complex program of personality research that resulted in a comprehensive model of the development and organization of personality over the life span. Cattell's empirically - based model included multiple types of input variables that influence personality (family, culture, genetic, and physiological factors), as well as multiple types of outputs (such as behavioral changes, personality and motivation changes, etc.). Child (1998) noted that Cattell's "major concern was to map out an integrated theory of human intellectual, temperamental and motivational characteristics within the context of hereditary and environmental influences using multivariate methods of analysis." Cattell's books were widely read, and they influenced the design of personality research around the world. For example, Cattell's book published in 1961 (with Ivan Scheier) on anxiety and neuroticism has become the core of modern state-trait theory.

Cattell's scholarly output was enormous at his University of Illinois laboratory, producing more than 50 books, over 550 journal articles and book chapters, as well as constructing more than 30 sophisticated psychometric instruments. As Dennis Child (1998) stated, "His major concern was to map out an integrated theory of human intellectual, temperamental and motivational characteristics within the context of hereditary and environmental influences using multivariate methods of analysis." Based on the peer-reviewed journal literature alone, Cattell was ranked among the top 10 most highly cited psychologists of the twentieth century (see Haggbloom et al., 2002, Table 1). Cattell's lifelong theoretical and quantitative research was focused on the rigorous scientific discovery, elucidation and measurement of psychological constructs – an admirable pursuit fully deserving of the highest accolade. So significant were Cattell's empirical contributions, and so extensive was the network of international researchers and distinguished scholars who collaborated with him over the years, that this whole genre of psychological research is now referred to as the Cattellian School of Psychology.

Psychology has advanced significantly as a result of Cattell's scientifically - oriented endeavors, not only in personality theory, psychometrics, and test construction, but also from his innovative contributions to specific theories – for example, his creative conceptualization of the Data Box describing the various combinations of persons, tests, occasions, backgrounds, and observers; the distinction between surface (observed) and source (latent) traits used in factor analysis, path analysis, structural equation modeling, item response theory, latent growth modeling, multi-level modeling, as well as multidimensional scaling; the state-trait distinction ranging all the way from transitory emotional states, longer-acting mood states, dynamic motivation traits, to enduring (relatively stable) personality dispositions; the distinction between fluid (Gf) and crystallized (Gc) ability – now extended as the Cattell-Horn-Carroll (CHC) theory of intelligence (see Schneider & McGrew, 2012); structured personality-learning theory involving trait change over the lifespan; innovations in factor analytic methodology; multiple abstract variance analysis (MAVA); as well as the multivariate measurement of cognitive abilities (see Cattell, 1987).

Cattell made many advances in factor analytic and other scientific methods (Cattell, 1978). His research was augmented by the presence of a talented group of psychometricians at the University of Illinois at that time, including Ledyard Tucker, Lee Cronbach, Paul Horst, and Henry Kaiser. When Cattell began his scientific research, factor analysis was a new and still - developing quantitative technique. It was largely through Cattell's empirical work and that of his students and colleagues that factor analysis became perhaps

the most widely used multivariate statistical technique for the elucidation of human personality structure (Nesselroade, 2001). Cattell was responsible for several creative innovations in factor analytic methodology, including the Scree Test of latent roots to determine the number of factors to extract (Cattell, 1966), rotation algorithms including both the analytical Maxplane and topological *Rotoplot* programs (used to attain maximum simple structure solutions), as well as the *Procrustes* program to test the validity of a hypothesized factor structure – Confactor rotation (comparing separate rotational solutions), the Taxonome program (for locating types), factor pattern similarity and congruence coefficients, as well as Conspect reliability (see John Gillis' chapter entitled "Quixote or Columbus?" in Miller, 1988). Cattell also showed how the $\pm.10$ hyperplane count provided a quantitative index of the degree of simple structure achieved.

Cattell's substantial contributions to factor analytic methodology (Cattell, 1978) and multivariate experimental research (Nesselroade & Cattell, 1988) have significantly advanced psychological science, and have facilitated the development of structural equation modeling. While multidimensional measures of personality traits such as the Sixteen Personality Factor Questionnaire (16PF) and the Clinical Analysis Questionnaire (CAQ) were derived from a programmatic series of regular (single-occasion*)* R-factor analyses, Cattell also utilized the innovative P-technique factor analysis (factoring a single individual's responses over say 300-350 consecutive days of test administrations), as well as the dR-technique (differential R-factoring of change scores across different measurement occasions) enabling the discovery and elucidation of state and dynamic trait factors.

Despite his many contributions to factor analytic methodology, Cattell considered structured learning theory and the dynamic calculus for assessing interests and motivational drives to be among his greatest achievements (Cattell, 1984). Thus, Cattell adopted a total approach to his scientific research that was objective, analytical, and replicable. Indeed, Lee Cronbach (1984) at Stanford University judged that, "[Cattell's] thirty-year evolution of ... methodology fed on bold conjecture, self-criticism, unbridled imagination, rational comparison of models in the abstract, and responsiveness to the nasty surprises of data. The story epitomizes scientific effort at its best."

Together with his wife Karen, Cattell built a psychological test publishing company – the Institute for Personality and Ability Testing (IPAT) – which has produced many sophisticated psychological measurement instruments (the Performance Assessment Network (PAN) Indiana, USA is now the parent company). IPAT researchers have constructed a wide range of psychometric instruments such as the Sixteen Personality Factor Questionnaire (16PF), and its downward extensions – the High School Personality Questionnaire (HSPQ), and the Early School Personality Questionnaire (ESPQ); the Clinical Analysis Questionnaire (CAQ) – revised as the Psychological Evaluation Questionnaire (PEQ) – which measures both the 16PF normal personality factors as well as an additional 12 abnormal personality factors; the Objective-Analytic Battery (OAB) – which provides objective (T-data) tests of 10 major personality factors; the Motivation Analysis Test (MAT), which is an objective measure of 10 important dynamic motivational trait dimensions, and its downward extensions – the School Motivation Analysis Test (SMAT), and the Children's Motivational Analysis Test (CMAT); the Eight State Questionnaire (8SQ) – a self-report rating scale which measures eight clinically important emotional/mood states; the Comprehensive Ability Battery (CAB) – which

measures 20 primary ability factors; and the Culture-Fair Intelligence Test (CFIT) – which minimizes the role of language and cultural learning in measuring intellectual ability.

The 16PF questionnaire is the perhaps best known of the many Cattellian psychometric instruments. The 16PF is a self-report (Q-data) measure of 16 primary personality trait dimensions. When the intercorrelations of these primary traits were subjected to second-order factor analysis, Cattell found that the primary traits coalesced into at least five second-stratum personality dimensions preceding the currently popular "Big Five" and the associated Five Factor Model (FFM) that were derived from analyzing a restricted subset of only 20 of Cattell's original 36 personality trait clusters (see Cattell, 1995; Krug & Johns, 1986). Boyle (2008) reported that the putative "Big Five" account for no more than 57% of the normal trait variance, let alone the abnormal trait variance, resulting from the restricted sampling of trait variables, thereby suggesting the need for extraction of additional second-stratum personality dimensions. The primary factors (traits such as warmth, self-control, dominance) have been found to be more powerful in predicting actual behavior. The 16PF remains a highly cited self-report measure of trait constructs and has grown to be one of the most widely used measures of normal-range personality in the world. The 16PF questionnaire has been translated and adapted into many different languages and cultures and is widely used especially in the USA, the UK, Europe, Australia, Canada, South America, and some parts of Asia. The 16PF has been used to assist in individual and group counseling, career guidance, employment selection and coaching (including selection for critical occupations such as Antarctic expeditioners), clinical and counseling psychology, as well as for research.

Cattell made many contributions to the study of intelligence. Important was his attempt to construct a culture-free intelligence test. This led to the development of figural matrices tests that are widely used in contemporary studies of fluid abilities (Gf) today. Another significant contribution was the investment theory (Cattell, 1987). Thus, crystallized intelligence (Gc) is said to reflect acculturational learning whereby learning outcomes are organized in the culture to help convert intellectual capacities captured by Gf into a form of intelligence deemed useful within a particular society. These learning experiences are accompanied by systems of reward and punishment that enhance or exclude some classes of behavior from one's behavioral repertoire.

Cattell was proactively involved in promoting international research collaboration. For example, in 1960 he founded the Society for Multivariate Experimental Psychology (SMEP), and its flagship journal *Multivariate Behavioral Research*, and subsequently produced two editions of the *Handbook of Multivariate Experimental Psychology*. For many years, the American Educational Research Association (AERA) has honored an outstanding researcher with the Raymond. B. Cattell Award. Likewise, the Cattell Early Career Research Award is given annually by SMEP to a young researcher who has made an outstanding contribution to multivariate experimental psychology and shows promise of continued work of a very high quality.

Cattell received many academic accolades, awards, and honors, including the Darwin Fellowship in 1935; the Wenner-Gren Prize of the New York Academy of Sciences in 1950; elected American Psychological Association (APA) Fellow; elected President of the Society of Multivariate Experimental Psychology (SMEP) in 1961; recipient of the Wisdom Award of Honor, 1970; election to the British Psychological Society (BPS) roster of distinguished

foreign psychologists in 1981; recipient of the Educational Testing Service (ETS) Award for Distinguished Service to Measurement in 1982; recipient of the APA Award for Psychometrics in 1983; and the Festschrift in honor of Cattell's lifetime contributions to psychological research and practice in 1986 (Miller, 1988). As a mark of respect for Cattell's prodigious scientific achievements, in 2014, the Raymond B. Cattell Scholarship was established by the Department of Psychology at the University of Illinois. Finally, in 1997, the APA announced that Cattell (at age 92 years) was to receive psychology's most prestigious honor, the American Psychological Foundation Gold Medal Award for Life Achievement in Psychological Science.

However, despite Cattell's indisputable scientific contributions, with no fewer than seven past APA presidents recommending him for the Gold Medal Award, at the last moment the Award was withheld due to an overtly political attack from two hostile critics (see Boyle et al., 2016). Contrary to the asseverations of these critics, Cattell had clearly eschewed racism and fascism (Dreger & Berg, 1998). In an open letter to the APA, Cattell (1997) declared that, "I abhor racism and discrimination based on race. Any other belief would be antithetical to my life's work." John Gillis (Cattell's official biographer) demonstrated unequivocally that these detractors had seriously distorted Cattell's position by taking quotes out of context, inserting their own words between his quotes, and referencing outdated writings from the 1920s and 1930s thereby giving a seriously false and misleading impression (Gillis, 2007). According to Gorsuch (1998), "The charge of racism is 180 degrees off track. [Cattell] was the first one to challenge the racial bias in tests and to attempt to reduce that problem" (as early as 1940, he had already devised the Culture-Fair Intelligence Test). In 1984, Cattell had specifically cautioned that eugenics should be considered only in relation to individual differences (such as eliminating genetically inherited diseases), not racial differences, and that birth control should be entirely voluntary. In addition, Cattell had emphasized that each culture should follow "its own path to maximize its own values and goals without suppression from any other culture" (Gorsuch, 1998).

Regarding the unsolicited accusations that resulted in withholding Cattell's Gold Medal Award, in an independent analysis, Lotz (2008) concluded that, "Cattell was deliberately misquoted on many occasions and labeled as an academic racist. The views he developed in the 1930s were common among his contemporaries when beliefs in racial differences were widely held, and should not be distorted by judgment according to today's standards. General scientific observations should not be read as personal moral statements. He was particularly wronged during the 1990s by certain writers (William H. Tucker and Barry Mehler) who picked out certain references referring to Germany, Hitler or genocide and quoted them out of context" (p. 136). Cattell was frail and in rapidly deteriorating health at the time of the Gold Medal Award, and passed away before he was able to correct these serious misrepresentations. In a recent (2014) review, Revelle concluded that this "spoke more about the political correctness of the APA than it did about the beliefs of a very creative and productive scholar."

Cattell was a humanitarian. Not only was he a scientist with high ideals in the pursuit of truth, but he was also a kind and generous man who had good intentions (as exemplified by the lasting legacy of a school he left for the impoverished children of Cambodia facing poor or non-existent opportunities for even a basic education). Cattell was proactive in mentoring his students and in collaborating with researchers all around the world. He would discuss their research interests with them at length, and encouraged and facilitated

their projects. He also was well-known for giving helpful advice and support when they ran into career or personal obstacles.

Cattell had been described by Goldberg (1968) as psychology's "master strategist." Few other psychologists have had as much influence on contemporary scientific psychology as has Cattell. John Horn wrote in 1998 that, "Cattell's research has contributed immensely to the breadth and depth of modern scientific psychology, both directly and through the hundreds of colleagues and students around the world with whom he worked.... in his remarkable 70-year career, Raymond B. Cattell has made prodigious, landmark contributions to psychology, including factor analytic mapping of the domains of personality, motivation, and abilities; exploration of three different media of assessment; separation of fluid and crystallized intelligence; and numerous methodological innovations....[Cattell] must be considered among a very small handful of people... who have most influenced the shape of psychology as a science."

Regarding metrics (see Haggbloom et al., 2002), Hans Eysenck (1985) had previously reported that, "According to the Citation Index ...Of the two hundred and fifty most cited scientists, only three psychologists made the grade, namely, Sigmund Freud in the first place, then the reviewer [H.J. Eysenck], and then Cattell. Thus there is no question that Cattell has made a tremendous impression on psychology and science in general." Dreger and Berg (1998) concluded that there can be little doubt that, "Raymond B. Cattell was one of the half dozen greatest psychologists of the twentieth century."

See Also

16 PF, Correlates of
Culture Free/Fair Intelligence Test
Factor Analysis in Personality Research
Multidimensional Personality Instruments, General Features and Methodological Issues

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**The Wiley Encyclopedia of Personality
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My dad, Professor Bernardo "Bernie" Carducci, had a passion for life. He loved being a dad, celebrating Italian culture and community, and talking cigars with friends at the local smoke shop. My dad also loved psychology – teaching psychology, researching psychological phenomena, and raising awareness of the power and promise of an undergraduate psychology degree. He was an excellent teacher, scholar, and mentor who never lost sight of his roots as a first-generation college student, committing numerous hours and energy in support of student success. To those who knew my dad, it was no surprise. He was a personality psychologist. My dad had a BIG personality, evident in his bright ties, Hawaiian shirts, and zest for life. He was passionate about the study of personality and experienced tremendous joy in his life's work, the study of shyness. My dad was honored to be selected as editor of the latest volume of the *Wiley Encyclopedia of Personality and Individual Differences* and frequently shared with me his enthusiasm for the project. Although his unexpected passing prevented him from shepherding the book through the final stages of publication, I know he would be proud of the final product and wish to express his gratitude to all contributors and editors. I would like to extend a special thank you to Chris Nave for his willingness to assume editorial responsibilities of this volume upon my dad's passing.

Dad, I love and miss you very much. Congratulations on the publication of this volume!

Rozana Carducci

Clinical Applications of Psychodynamic Theories of Personality

Karl W. Stukenberg

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Personality Theory

Personality is determined by the most complex system in the known universe – the human mind, and its interactions with the world around it, a world filled with infinite cultural and individual variability. Each person has a unique mind and set of developmental experiences, creating a distinctive person with his or her own peculiar character. Psychodynamic theories of personality have brought considerable order to our understanding of the infinitely complex set of combinations of cognitive aptitudes and styles, life skills, styles of relating to others, emotional strengths and weaknesses and personal histories that we refer to as a person's personality. What could be simultaneously better known and more mysterious than the operation of our own minds? What is more familiar and stranger than the thing that we call our self? Even though the various psychoanalytic descriptive systems that have been developed are frequently incompatible with each other in one dimension or another, taken together, they form a means of both describing the potential that an individual has to develop – helping guide the therapist in facilitating growth – and the limits that a person may have in that development – helping the therapist work with the patient within the constraints that the person's personality organization, abilities, and motivations offer.

Since Freud's earliest writings, psychodynamic theories of personality have arisen and been applied in a clinical context. Freud was a research neurologist forced into clinical practice by the anti-Semitic politics of his time, and he turned to psychological explanations of neurological complaints when it was apparent that the causes of the symptoms were "neurotic"; meaning that there were psychological causes to what appeared on the surface to have been neurologically based disorders (Gay, 1968). By definition, neurotic symptoms were unwanted intrusions into a person's life, and therefore originally considered to be alien to the personality structure (Fenichel, 1945), but as Freud and others studied the character structures of their patients and also their own personality structures, it became apparent that the personality itself – the way a person characteristically approached

the world – was wrapped up in the symptoms that were to be addressed in treatment. Some personalities, or aspects of personality functioning, were considered to be disordered. For instance, a person's way of interacting with the world might be organized around warding off things that have germs or that are dirty or might be considered dirty, and this might lead the person to be emotionally remote so that they became chronically lonely and isolated – and this might register as what we would call depression. They would be "diagnosed," in addition to being depressed, not as having obsessive or compulsive symptoms, but as having an obsessive personality disorder. But it was also the case that the form that even more transitory symptoms take may be related to developmental issues and how they were resolved, as well as the use of characteristic defense mechanisms (Freud, 1905, 1923). For these reasons, the study of personality became ascendant in psychoanalytic theory and the treatment of the personality rather than directly treating symptoms became more and more the focus of psychoanalytic treatment.

Psychodynamic theories of personality have always been intended to be applied in a clinical setting. To this end, they are, at their best, dynamic descriptions of who the person is in the process of becoming rather than static descriptions of who the person is, and further they are descriptions of how best to join the person to help facilitate his or her ongoing developmental progress (McWilliams, 2011; Peebles, 2012). Psychodynamic theories of personality integrate information from a broad array of sources to help clinicians describe individuals' readiness for treatment based on structural strengths and weaknesses (e.g. reality testing, emotional regulation, verbal and spatial reasoning), developmental history including disruptions (e.g. trauma, conflicts, splits, and maladaptive behavior patterns), object relational maturity (whether the person is at a healthy, neurotic, borderline or psychotic level of functioning), and characteristic defenses (e.g. repression vs denial vs undoing) and all of this is understood in the context of the person's ability to make use of relationships to grow and develop. The goal of psychodynamic theories of personality is not just to discover the landmarks with respect to which people may be located (as occurs in a symptomatically based diagnostic system like the DSM or ICD), but to discover the addresses of the buildings in which people live (Holt, 1968) – something that requires the inclusion of the idiosyncratic personal information that is only relevant to this particular individual and how they and they alone engage with the world. Somewhat intermediary between these two points are generalized descriptions of how people function that allow this person to be compared to paradigmatic descriptions of others, and this is the basis of psychodynamic diagnostic systems.

Psychodynamic Psychodiagnostic Systems

Though psychoanalysis is the invention of Sigmund Freud, clinicians and researchers working from the psychodynamic perspective have been developing it for more than 100 years and the depiction of psychoanalysis that is in most college textbooks is terribly dated. Basic ideas that Freud initially articulated have been worked and reworked to more closely fit the observed experience of the patients that present at various clinics – and, indeed, the types of issues that people struggle with have developed and changed since the time of Freud – in part in response to the ways that psychoanalytic thinking altered our

understanding of ourselves and our symptoms (Gay, 1988). The following description of personality assessment from a psychodynamic perspective is one that is based in a contemporary understanding of personality – one that will continue to unfold and develop as we move forward in time.

The two editions of the *Psychodynamic Diagnostic Manual* (PDM Task Force, 2006; Lingiardi & McWilliams, 2017), include a description of the character functioning of a person as part of a comprehensive psychological diagnosis. The work on the PDM has been collaborative. Both the PDM and the current revised PDM task forces have been co-chaired by Nancy McWilliams whose text, *Psychoanalytic Diagnosis* (McWilliams, 2011) has gone through two editions. This work is an integrative diagnostic schema that relies heavily on a two-dimensional psychological space originally proposed by Kernberg (1975). The two dimensions are a system of sorting character styles based on characteristic ways of functioning – e.g. obsessive, hysteric, paranoid, etc. – and levels of character structure based on pathology – divided broadly into healthy, neurotic, borderline, and psychotic levels. The personality style (obsessive, hysteric, etc.) is not inherently pathological or problematic – it is descriptive of how a person goes about managing a variety of interpersonal and intrapsychic (psychologically internal) aspects of living. The level of character structure, on the other hand, is a continuum that includes assessment of the relative health of the personality. From this perspective, borderline level functioning is intended to be just that – literally occupying the borderline conceptual space between healthy and neurotic on the healthier end of the spectrum and psychotic on more disrupted end of the spectrum. Using this system, a person's personality or character can be roughly mapped by articulating their character style or type – e.g. obsessive – and the organizational level of their character structure – e.g. borderline. Thus, in the example above of the persona who is organized around a fear of germs and dirt, an individual can be located in the diagnostic space by characterizing them as having an obsessional character structure (they are afraid of dirt and germs is one part of this, though there are many other characteristics that coalesce to clarify that this is their style) organized at the borderline level (which would be the case if their concerns were, at times, unrealistic).

The character styles or types are clusters of characteristics that define the dominant ways a particular person addresses problems. There are a variety of familiar labels of these styles: hysteric or histrionic, obsessive-compulsive, dependent, avoidant, paranoid, schizoid, schizotypal and narcissistic, to name a few. Character style can be considered to be a description of a prototypical style – one that is based on confluences of characteristics that frequently co-exist. No person meets a characteristic style in all aspects and certainly not at all times. Using two or even three styles to characterize the central range of a person's functioning may more helpfully describe their style – especially when it is possible to say what kinds of situations evoke which aspects of their style – e.g. this person becomes more dependent in situations with less structure and direction, while they are more histrionic, meaning focused on connecting with people in a loving way, when they are more certain of what is expected of them. Ultimately, however, a true portrait of the individual will involve specific aspects of their personal developmental history, the variety of styles that they use to engage different types of problems, as well as characteristic conflicts and how those get played out in a variety of relationships and when confronted by various challenges.

McWilliams (2011) describes the various personality styles that she enumerates from the four classic psychoanalytic perspectives articulated by Pine (1990): drive, ego, object relational, and self-aspects of individual functioning. Below, using the examples of the histrionic (which has more traditionally been referred to as the hysteric style) and the obsessional styles, each of the four classical perspectives will be described. Choosing these two styles is based on the differences between them. They are, in some sense, caricatures of the female and male gender role stereotypes. People with the histrionic style are warm and energetic and they build their worlds around connecting with others. They can also become easily emotionally agitated but just as quickly return to more level-headed functioning when the source of distress is resolved. People with the obsessive or compulsive style on the other hand are experienced as being driven and emotionally remote. Though the style binds anxiety – it does it so effectively that there can be a machinelike experience of these individuals.

Drive perspective. From the drive perspective, individuals rely on dominant defensive strategies to manage the human drives (Freud originally posited a sexual drive and later added an aggressive drive. Psychologists have posited and sometimes demonstrated a host of other drives including curiosity as well as such things as affiliation and attachment). Defensive strategies redirect the energy of the drive toward various alternative ends, and these ends can both help and hinder the functioning of the person. So, for instance, the histrionic or hysteric style is characterized by repression, which is a particular kind of forgetting. This helps individuals with the histrionic style overlook aspects of another person that would make it hard to stay positively related to them, but it can interfere with retrieval of needed information, especially when under pressure. The obsessional style is characterized by exerting control. Afraid of being out of control, the obsessive has high expectations for themselves, which helps them achieve a great deal, but it is also a constant strain to be living up to what they imagine others expect of them.

Ego psychology perspective. Shapiro (1965), an early systematizer, working from within the ego psychological tradition, used cognitive ego styles to distinguish between types, noting, for instance, that the hysteric (or histrionic) style is characterized by global and broad cognitive processes. This allows the person to grasp the big picture and keeps them from getting mired in the details. The obsessive style, on the other hand, is characterized by great attention to detail. The obsessive tends to be highly organized and good at achieving objectives that have been clearly laid out to him or her, but may have more difficulty seeing the forest for the trees.

Object relations perspective. Object relations is a poorly chosen descriptor for understanding a person's interpersonal world. At one time, psychoanalytic theorists thought of people out there in the world almost exclusively as if they were objects in a particular person's mind. While that is true, people are also living and breathing and exist outside of each other's minds. In any case, a person with a histrionic style is primarily interested in relating to others in a loving fashion. They react positively toward others and expect that reaction in return. That said, they can be oddly uncomfortable with intimate relationships as if afraid that the other will discover that they are not valuable in a deep and sustaining way. A person with the obsessional style is interested maintaining hierarchical relational clarity – knowing who is reporting to whom, for instance, but they are also interested in providing for the other what is expected from them. The person with the obsessive style is

thus reliable, but can also be demanding and feel that others have not adequately lived up to what they have said they would, so that they can become rageful – which leaves them feeling out of control.

Self-Representation Perspective

Our self-concept is the way we make sense of who it is that we are. We believe ourselves to have central traits that describe us, and we tend to work to keep ourselves more or less consistent with those traits. Our self-concept serves as a means of organizing our experience of ourselves to ourselves – it is kind of our own assessment of our personality. The hysteric sees him or herself as small, defective and therefore orient themselves to others to get both direction and a sense of value – if you find me valuable, I may be better able to value myself, they may say in effect, but of course that can also lead to the fear noted above that if you really know me you won't find me of value. The obsessive, on the other hand, is deeply concerned with his or her moral standing and the ability to control his or her actions so that he or she does the right thing.

While each of us has home styles and primary ways of organizing our worlds, personality styles in actual people – not in the paradigmatic descriptions – include a complex interweaving of primary defensive strategies, cognitive styles, and other factors, some of which lie within the psychoanalytic range proper and others, e.g. a factor like intelligence, have been studied in psychology more broadly as well as from a psychodynamic perspective. The art of personality assessment in a clinical setting is to use the paradigmatic descriptions to guide the articulation of an idiosyncratic and unique integration (or failure to integrate) of a person's emotional, cognitive, interpersonal, and self-concept into the person that they are.

The categorical personality dimension does not have universal agreement among personality theorists. McWilliams, for instance, refers to fewer diagnostic categories in her book than are used in the PDM. The origins of the categories are based in clinical observation and new categories have emerged as new ways of conceptualizing human functioning develop – in the 1970s, for instance, there was considerable controversy about how to characterize narcissistic functioning, with theoreticians forming into camps who were supportive of Kohut's formulation of narcissism as a relatively benign personality deficit that interfered with completing various developmental tasks like advancing in education or a professional career because of interpersonal sensitivity versus Kernberg's characterization of narcissism as a destructive self-centeredness that had the potential to destroy relationships, harm other individuals, and wreak havoc in communities. Gabbard (1994) and others ultimately proposed that Kohut, who was working primarily with outpatients who were largely professionally and personally successful, and Kernberg, who was working primarily with inpatients who were referred for treatment after having caused significant damage within their families and sometimes their professional communities, were describing two very different clinical populations, with different etiologies and clinical presentations, but each having self-regard or self-esteem as a central psychological dynamic. The categorical system has spawned personality inventories, which will be discussed later in the assessment portion of this entry, and the inventories have lent empirical support to the

personality constructs as having reliability and discriminant validity – these are not just ways that clinicians stereotype, but they have scientific credibility.

Typically, categorical systems in the psychodynamic tradition have been defined by the maladaptive behaviors that cause individuals to come to the attention of clinicians. This can lead to harsh interpretations of the styles that hide the many healthy and creative problem-solving strategies that are integral to each style. McWilliams (2011) notes the following styles: psychopathic, narcissistic, schizoid, paranoid, depressive, masochistic, obsessive-compulsive, and hysterical. Each can have maladaptive features but they can also help a person thrive in various environments. The styles are clinically useful descriptions that hold together – that is, they are seen within people – they are not the result of statistical manipulation of self-report data in the way that the Big Five Personality Factors (McCrae and Costa, 1990) are, even though they also have scientific support. Some of the styles are associated with a wide range of psychological functioning – the obsessive-compulsive style, for instance, can be seen at the neurotic, borderline, and psychotic levels of organization – but some are more intrinsically pathological and are likely to be seen almost exclusively at the borderline to psychotic levels of organization – the paranoid style would be an example of this. That said, there are many individuals functioning primarily within the paranoid style who function well in society – especially if they find a niche that draws on the strengths of the style – for instance working for the Transportation Security Administration (TSA) might draw on some of the strengths of this style – an attention to detail and a basic level of mistrust – both of which might serve the ends of the organization, in this case identifying suspicious passengers, well.

The healthy – neurotic – borderline – psychotic dimension of the diagnosis has its roots in Kraepelin's (1913) system of distinguishing between levels of mental illness – based on creating a distinction between a psychologically determined illness (neurosis) and those with a presumed biological cause (psychosis). Later systems distinguished between neurotic – meaning symptomatic reactions to stressors – and character problems – meaning chronic maladaptive patterns of responding to the person's world. In the middle of the last century, a new and now overused intermediate term emerged; the borderline level of adaptation. Evolving out of early observations of hospitalized, nonpsychotic but deeply troubled and difficult to treat individuals (e.g. Frosch, 1964; Knight, 1953; Main, 1957), this conceptual region was more carefully charted by a growing number of people with a variety of methods of observation (Grinker, Werble & Drye, 1968; Kernberg, 1975, 1976; Masterson, 1976; and Stone, 1980, 1986). DSM-III-R (American Psychiatric Association, 1991) incorporated the term, but did so in a way that destroyed the dimensional aspect – Borderline was used as a categorical description – a description of what would basically be seen as a borderline level person with a hysteric or histrionic personality style from a psychodynamic perspective – and the term became reified in common language as a type rather than a range of functioning applicable to all types.

Despite the complications of relying on a term that has been hijacked for other purposes, psychodynamic psychodiagnosticians continue to value the ability to describe the level of psychological health that an individual displays along with a typological description. Healthy and neurotic functioning is used to describe the highest level of personality organization. These individuals have an integrated sense of identity (Erikson, 1968). Their reality testing is good, and while they are able to feel deeply and passionately about aspects of

their lives, they are not easily overwhelmed by feelings, nor are they likely to act impulsively on poorly understood feelings. The defenses that they use are higher order defenses – the hysteric's repression is such a defense. Sublimation, the ability to turn a base drive like sex, into a higher aim – whether that is painting or using a sexual interaction to express love for another person while also gratifying the drive, is another such defense. The issues that bring neurotic level people to treatment are quickly seen as ego alien – meaning as problems that need to be understood and addressed, and it is relatively easy to establish a treatment alliance with them. For instance, a man with a masochistic style who is organized at a neurotic level will be able to see relatively easily that his sense that another is doing harm to him is partly that he imagines that the other knows him well enough to know what will hurt him and he then uses this idea to feel more closely connected to that other person.

People with borderline-level personality organization are characterized by having an unstable sense of self, difficulty managing affects, and the use of more primitive psychological defenses (the hysteric organized at the borderline level would rely more heavily on denial – saying what happened didn't happen – than repression – not being able to remember clearly what happened) to manage the shifting, confusing, and sometimes chaotic internal worlds that they inhabit. As a means of describing a spectrum of functioning, there is a considerable difference between individuals functioning in the upper borderline level – who are more consistently perceived as being neurotic in their approach to the world, with dips in functioning that may be related to being in situations that are unstructured and/or emotionally demanding – when their functioning takes on more borderline characteristics, and those who are functioning in the lower borderline level who can be characterized as having more consistent challenges with a sense of personal integrity and whose reality testing may be problematic, again especially at times when they are in poorly structured and/or emotionally demanding situations. This should also help to clarify that psychodynamic personality diagnosis is less about a procrustean description of a two-dimensional character, and more about defining a central area of function – one that varies based on situational factors – including both environmental and psychological factors. If our person with a masochistic style described above were organized at the borderline level, he is more likely at the beginning of treatment to enact the masochistic relationship with a therapist and others in his life with little ability to reflect on this as something he has partially created, instead experiencing the other as visiting pain and suffering on him – and he would have little ability to reflect on the ways that this is reassuring to him. He might only be able to be puzzled about his continuing to engage in such a relationship after a considerable period of time in treatment and after other means of establishing a sense of connection with the therapist had been established. Once the patient became more secure in the relationship with the therapist, the two of them together might be able to talk about the ways that the patient felt hurt and damaged by what the therapist said – but also felt some gratification that the therapist knew him well enough to say things that would hit that close to home.

People with psychotic-level personality organization may not be floridly psychotic (meaning they may not hallucinate or talk nonsensically) – they may function in day-to-day life with apparent ability – though some of them have intermittent or even relatively continuous debilitating difficulties with reality testing and experience such symptoms as

hallucinations and delusions. What unites this group of individuals is a persistent sense of deeply felt existential concerns. Individuals in this range of functioning question their basic integrity as people – they lack a sense of continuity from moment to moment and/or from one part of their lives to the next. They fear the impact of their actions on others. They may be highly attuned to others – in part as a means of maintaining a sense of continuity and connection – something that is an essential struggle for them. Though the issues these individuals struggle with are much more severe and their symptoms can be more personally disruptive, as a group they are frequently easy to engage with – they are hanging on for dear life – instead of careening through life (more characteristic of the borderline level of functioning) – and tend to be more appreciative of people who are interested in connecting with them and helping them maintain contact with the world, though they also may not be able to sustain prolonged contact or to deal well with interpersonal conflict. Thus our masochistic individual might be quiet about the ways in which he feels injured in a close personal relationship in part because he fears that articulating this might threaten the relationship, and thus his personal integrity. Helping him to articulate this might require a deft ability to read between the lines of the relationship that emerges with him.

The clinical utility of psychodynamic theories of personality should be becoming apparent after this section. Psychological disturbances such as depression or anxiety or schizophrenia are not seen by the psychodynamic clinician as discrete phenomena, but rather as biologically, socially, and psychologically determined aspects of a person's functioning that emerge out of and are in constant dialogue with the personality style of the individual. The goal of psychodynamic treatment is frequently not symptom focused *per se*, but person focused. The goal is to treat people – and the personality is the context; it is the best available description of the person that a clinician is able to achieve as he or she works to help the person develop and cope with what is distressing to him or her and/or to the people around him or her. From this perspective, symptoms are integral aspects of the person who is being treated, not separate entities. As the person learns how to more maturely use their personality style – to move up the developmental axis – and becomes more confident that they can connect with others (including the therapist), they can find that their personality serves them better and that the symptoms are less prominent and interfere less in their functioning.

Personality Assessment

Psychodynamic assessment of personality has a long history that has contributed to psychodynamic theories of personality, but it also draws heavily on them. Rappaport, Gill, and Schafer (1968) published a manual describing a basic psychological test battery of a Wechsler Intelligence Scale, the Thematic Apperception Test (TAT), and the Rorschach Inkblot Procedure that has become a standard personality battery that people have used with various permutations (and from various theoretical orientations) since then. The original battery also included a word association test and other tests that are now less commonly included. Current batteries also frequently include self-report instruments (Bram & Peebles, 2014).

A basic premise of personality assessment from a psychodynamic perspective is that the instruments used to assess personality are a means for the clinician to have access to the person being assessed and that it is the clinician, not the instrument, which assesses personality. Personality instruments – whether "objective" or "projective" – are standardized means of observing a person's behaviors, and provide the clinician with data that then leads him or her to make inferences about both the personality category and the level of functioning of the individual being assessed. That said, some instruments are focused more heavily on one dimension or aspect than another.

Interview methods are likely the most common means of obtaining a personality diagnosis among practicing clinicians, and this is most likely done in unstructured interviews as part of an initial but also an ongoing assessment of patients. The Shedler-Westen Assessment Procedure (SWAP: Shedler & Westen, 2007) helps clinicians organize their observations of patients by having them do a Q-sort (deciding which items are most characteristic of the person) of 200 standard diagnostic statements which are then compared to national norms of patients in treatment being rated by their treaters. Kernberg (1984) has proposed a more structured interview, especially as a means of determining borderline level personality functioning. Stern, Caligor, Roose, and Clarkin (2004) have developed an empirically validated instrument, the Structured Interview for Personality Organization (STIPO) that provides a reliable measure of borderline level functioning.

Interview methods of assessment are central to the Case Formulation model of diagnosis, a model that traces, within psychodynamic traditions, back to the case studies of Janet, Breuer, Freud, Jung and Adler, that were formalized in the middle of the twentieth century (e.g. Menninger, 1952), and continue to be a central way that psychodynamic thinkers organize their approach to understanding people's clinical presentation (McWilliams, 1999). Other traditions also rely on the case formulation method (e.g. Eells, 1997; Ingram, 2006; Kuyken, Padesky, & Dudley, 2009). This method relies on creating a narrative out of various sources of information, including developmental history, presenting issues, stressors, relational history, and psychological resiliency into a narrative formulation, which is ultimately a complex hypothesis about the structural and dynamic organization of the person. This approach has been criticized for its overreliance on interview data, which is, like other forms of self-report, reliant on the reporter's ability to self-observe as well as being produced in an interaction where the reporter becomes a passive responder to the interviewer's activity. Another criticism has to do with the reliability of the narrative structure that is created (Peebles, 2012).

Self-report instruments are, in some ways a logical extension of the interview. Indeed, the originators of the Minnesota Multiphasic Personality Inventory (MMPI) intended for the instrument to serve as a more efficient means of collecting interview type information and originally thought that reading through the responses would be a means of interpreting the instrument. This quickly proved to be a task that was beyond the capacities of the clinician and the advantages of using statistical comparison to others taking the test became apparent. The Millon Clinical Multiaxial Inventory-III (MCMI-III; Millon, Davis, & Millon, 1997) is an example of a sophisticated symptom- and trait-based measure that, like the MMPI, can serve as a source of inferences about the functioning of the person – especially through the eyes of the patient themselves. That said, in constructing both instruments, researchers relied as crucial steps on the items' abilities to distinguish

between clinical groups *regardless of the content of the items* (more so for the MMPI than the MCMI), and this can help clinicians ascertain things about the person that they do not themselves already know (see Finn (2007) for evidence of this and how to use it interpretively), though the items do require a certain level of insight and comparative ability. A psychodynamic assessment of personality functioning should, by its very nature, be pointing the clinician and the person being assessed in the direction of *knowing more about those aspects of the person that they themselves don't yet know*, and this should be supported not just by theoretical relationships between something on the order of traits, but by intimate contact with the functioning of this particular person, and thus directly observing the person's behavior is an important component of most psychodynamic assessment (Meyer, 1997). Further, the assessment of a testing alliance – how it is that the assessor and the person being assessed work together – is an important predictor of a treatment alliance (Bram & Peebles, 2014).

Psychological testing batteries allow for observation of personality functioning in standard settings that are generally novel to the person being assessed. Bram and Peebles (2014) have written a text describing how to integrate material from various instruments – the Rappaport, Gil and Schafer battery form the core of their battery – that allows the clinician to observe the behavior of individuals in settings that have differing levels of structure and different demand characteristics – as well as opportunities to articulate narrative organization to ambiguous stimuli. Such approaches allow for the integration of nomothetic (comparison with groups of people) with idiographic (individually and idiosyncratically based) inferences about the functioning of individuals.

Psychological testing can afford norm referenced information about a person's cognition and learning style, reasoning, reality testing, emotional regulation, and relational capacities. These data can be invaluable in determining a course of treatment and can save tremendous time and effort that might otherwise be spent in pursuing treatments that do not fit with the capacities of the individual seeking help. That said, the criticism of psychological testing not meeting scientific standards for reliability and validity has led to efforts to improve the internal validity of tests (e.g. Exner, 2003; Meyer, Viglione, Mihura, Erard, & Erdberg, 2011), but these efforts can be a double-edged sword, with the potential for clinicians to cling to defensible and numerically supported conclusions at the expense of creatively engaging with individuals with the tests as aids in a process that is essentially humanistic while also being scientific.

For instance, the Rorschach Inkblot Procedure has long been a psychoanalytic tool used to make inferences based on what the patient "projects" onto the relatively ambiguous parts of the inkblot plates. Hermann Rorschach created his procedure in the early part of the twentieth century. He was working in a psychiatric hospital in a backwater part of Switzerland, and the Inkblot Procedure was his ticket out of the sticks. Unfortunately, he died suddenly and prematurely of appendicitis before that occurred, before he was able to exert control over how the Rorschach Procedure was used, and before he could let the world know that the stimuli he published were not inkblots!

To start with that last bit first, Rorschach was a fine watercolor artist. He was working with severely disturbed patients with diagnoses like schizophrenia, and he found that the inkblots that he initially used did not have enough structure for his patients to report seeing anything. So he copied them as pen and ink drawings with a watercolor wash. In the process of doing this, he *drew actual things to be seen* into the areas of the inkblot that had

originally been vague. Rorschach was primarily interested in being able to distinguish psychotic-level functioning folks from others, but when his instrument came to the United States, it was also used as a "projective" instrument, and the content of what people saw in the "inkblots" was used to make inferences about what was stirring their minds – what content made up their personality.

In the past 40 years, the Rorschach Inkblot Procedure has gone through two systematic iterations intended to improve its reliability and validity – to make it a better nomothetic (norm-based) instrument. The first iteration was Exner's Comprehensive System (Exner, 2003). Since Exner's death, an evaluation of the empirical basis of the Rorschach that led to the first Psychological Bulletin Article on it in decades (Mihura, Meyer, Dumitrascu, & Bombel, 2013) and also led to a subsequent revision of the Exner system, the Rorschach–Performance Assessment System (Meyer, Viglione, Mihura, Erard, & Edberg, 2011). What is apparent from this process is that Rorschach's original intent of the instrument, to assess psychotic level perceptual and thought processes, is the dominant strength of the instrument from the perspective of reliability and validity.

There are also variables on the Rorschach that are more "personality" related that have acceptable, but not as strong reliability and validity – such things as measures of dependency and extraversion/introversion, levels of introspection, and narcissism – and though the assessor is directed to look at possible projective content of particular responses, this level of analysis – one that can achieve great specificity – is not heralded as a reliable means of assessment. Despite it not being reliable – this assessor may assign different meaning from that assessor – it can, in skilled hands, inform the idiographic (individually based) understanding of the personality of this particular person. The ability to understand who this individual is gets compounded when idiographic information is used from multiple tests – where the skill of the clinician to integrate sometimes quite disparate information is at a very high level and requires knowledge of both the individual instruments *and* of how to integrate results from them. There are very few controlled studies that point to the reliability and validity of this most important (and powerful) clinical function.

Treatment Planning

Within the psychodynamic tradition, personality theory is intended to aid in treatment planning. Knowledge about the current state of the individual is used to predict both how to interact with that person and what kinds of treatment changes can be achieved. The irony is that a system that can be perceived to be static – who this person is – is being used to predict a developmental process – the unfolding of new ways of interacting, usually in the context of a therapeutic relationship. This can create a tension in that therapists can become overly reliant on a static description that can limit their vision of the person as a whole. This occurs frequently with the borderline personality diagnosis (from the DSM perspective) and is a criticism of using that diagnosis. People who receive the DSM borderline diagnosis can be shunned by treaters who assume that it is being used to describe people as difficult to treat – and the diagnosis is thus misused as an excuse to avoid engagement rather than to promote it. Perhaps more maliciously, simply holding in mind that a person is whatever categorical label one would assign limits the clinician's ability to engage

with that person as a whole human being who is necessarily more complex than any description, no matter how complete, can articulate.

As an illustration of the complexity of character, Stephen King was once asked in a radio interview whether the person who was driving the pickup truck that struck and disabled King as he was walking near his home – the driver was reaching over the seat to beat his dog and grab a beer when he struck King – was like a character from one of King's novels, and King replied that no living person could be a character in one of his novels, as any living person is infinitely more complex than any of his characters. And in that sense, any personality diagnosis, no matter how complex, reduces people to being characters or a set of characteristics. So it is incumbent on the clinician to use the diagnosis not as an end, but as a means to helping a person facilitate a process that helps the client come to better understand and use themselves as an instrument. One way of conceptualizing treatment, in fact, is that it is an extended diagnostic process the goal of which is for both therapist, but especially the patient to achieve a more broad-based understanding of their personality functioning. As this occurs, the patient should achieve greater autonomy from past constraints and, indeed, from some of the limiting factors identified in the initial evaluation so that they can direct their lives with greater freedom and come to know themselves more fully.

Despite the fact that all people are more complex than any diagnostic system can capture, describing the functioning of a particular personality system can help the treating clinician from two opposed positions. It can help the clinician know what to do – but also what NOT to do. First, it can help the clinician appreciate the configuration of the person and the types of interventions that will help the patient develop. Though this has a long history (see Horowitz, 1986 for instance), one of the most powerfully empirically supported examples of this is Blatt's distinction between anaclitic and introjective depressive experiences (Blatt, 2004). Anaclitic depression is characterized by exaggerated interpersonal concerns, and these include abandonment fears with accompanying loneliness, helplessness and feelings, of weakness. Introjective depression is focused around issues of self-esteem and questions about achievement. The introjective depressive experience includes a tendency toward a self-critical and self-evaluative attitude.

Blatt (1998) summarized the results of a series of studies about the differences between the therapeutic alliance of patients with anaclitic and introjective depressive styles noting that supportive psychotherapies lead to better outcomes with anaclitic depressives while "...patients preoccupied with issues of self-definition, self-control, and self-worth (patients with an 'introjective' form of psychopathology) demonstrate significantly greater therapeutic gain in long-term intensive psychotherapy and in psychoanalysis than do anaclitic patients" (p. 738). The interpersonal distance and autonomy promoting function of more interpretively based treatments, including psychoanalysis, are more useful to patients whose primary motivations involve self-improvement (the introjectives) while for those whose focus is on their sense of isolation and consequent wishes to connect, more supportive treatment addresses these concerns and the resulting stronger alliance appears to be related to more positive treatment outcome.

The treatment implications section of the test report is not always based on such firm empirical foundations as Blatt has afforded. More frequently, there is a mixture of the theoretical understanding of the personality style of the patient with the lived experience of the testing alliance that developed that leads to making recommendations. For instance, in an administration of the TAT with a very intelligent patient, the stories the patient told

hardly qualified as stories at all – instead they were primarily descriptions of the pictures with very little elaboration – even with querying for the prompted components of the story. The examiner, before presenting the fifth card, asked the patient if there was something about the testing situation that was interfering with his ability to engage in the testing process. A conversation followed in which the patient acknowledged that he felt coerced into the testing and the treatment as a whole. When the patient returned to the TAT, the story told in response to the next card was filled with rich details that were transparently related to the person's life and conflicts. This led the examiner to recommend that a treater use transference based interpretations (talking to the patient – as occurred in the testing – about what was happening between the treater and the patient at this particular moment) to help the patient articulate his experience, especially when he was feeling stuck in the treatment. This particular treatment recommendation is based on an immediate experience of a positive outcome based on a trial intervention.

Theoretical and empirical knowledge of the functioning of personality styles is a solid base from which to predict treatment interventions – including what NOT to do. Paranoid patients, for instance, frequently respond with angry and aggressive attacks when their delusional beliefs are confronted. This is because they rely on these beliefs to manage deep and frequently psychotic level fears. Having the pillars of what they experience as their reality testing removed is something that they react to with severe disorientation and try to fix as soon as possible. The person doing the assessment, in order to maintain the testing alliance, may assiduously avoid confronting delusional beliefs once they sense that they exist because of an understanding of the subsequent likely reactions. They will then predict such a reaction without having evoked it based on the rest of the information about the person. A treatment may then take place in which the person comes to relinquish their delusional beliefs slowly over time without having them ever overtly confronted as their developing ability to manage the underlying anxieties becomes stronger. In addition to saying what NOT to do, e.g. do not confront the delusion, the examiner may recommend that helping the paranoid patient address the underlying existential concerns, for instance, working to help the patient connect with people in their social world to reduce the need to feel that imagined others are watching them, and this, in turn, is based on integrating information about the person with theoretical knowledge about the condition.

Avoiding confronting a paranoid patient's delusions illustrates a common element of a treatment implications section of a test report. Though it is sometimes the case that the section is indicating what a therapist should do, more often than not it includes cautions about what to avoid in working with a particular patient. The assumption of the assessor should be that the treater is a generally competent therapist – and so treatment implications should not be generic, but particular to working with this individual patient. And then frequently the issue is one of warning a therapist to inhibit a usual and expectable therapeutic mode of functioning – for instance, to avoid too quickly correcting distortions with a paranoid patient – in addition to suggesting particular interventions – such as letting an introjectively depressed patient understand that treatment will very likely be effective, but will also likely take considerable time as they need to work toward feeling that they can rely on the therapeutic relationship, something that is really difficult for them to do.

A related issue, then, is the personality of the therapist. It is the responsibility of the treater to create a therapeutic environment for the patient. But therapists are no more infinitely flexible in their style of engagement than patients are. I highly respect a therapist

who works very well with individuals who present with severe and chronic alcohol and substance abuse on an inpatient unit. The consistent confrontation that is necessary in this work would be very difficult, perhaps impossible, for me to reliably provide, but the clinician I am describing thrives in this environment. On the other hand, she finds work with the client groups that are my bread and butter to be hard to manage as she experiences the emotional pull of the work to be so much less intense that she struggles to remain engaged.

Freud's only directive to his patients was to say what came into their minds – to freely associate. This turns out to be a much more complicated direction than it appears on the surface. In fact, being able to freely associate may be better understand as a therapeutic goal than a condition for treatment. Components of our personality – our defenses in particular – prevent us from freely associating. Defenses are intended to protect us from internal threats (thoughts that are forbidden or anxiety provoking) and external threats (interpersonal pressure). In addition to interfering with free association – resisting it and therefore treatment, our personalities help bind and direct our thoughts so that when they are flowing freely they are able to be goal directed and not simply random associations.

Contemporary clinical applications of psychodynamic personality theory are intended to help the patient and clinician work together to help the patient more fully inhabit themselves – to more fully exploit their personality style – one that is similar to others but ultimately unique and very much one's own – in order to live a more productive and happier life. The means to doing this is to provide, relatively early in the treatment process, a roadmap – a description of the elements of a person's interpersonal, cognitive and affective approach to the world – so that the therapist and patient can more quickly get to know each other and get to work on evaluating how best to develop the resources and manage the deficits that the individual brings with them to the moments in their lives.

In conclusion, psychodynamic theories of personality have a broad range of applications in clinical settings. Ultimately, psychodynamic therapists are trying to work with their patients to understand the patient – their personality – more fully. While the person's personality is, ultimately, unique, it is useful to get a sense of how it is that they relate to the world is similar to the ways that others do that. Psychodynamic psychotherapy has developed various diagnostic systems to classify personality. In this section, the current dominant system, one that is based on two-dimensional "mapping" of personality onto personality styles and onto how psychologically healthy the individual is was described. This was followed by descriptions of various techniques for assessing individuals, and then a final section that talked about how reports about people's psychological functioning are generated to help the patient and their therapist get to work on better understanding the functioning of the patient. The descriptions help alert practitioners to things they should do and, perhaps just as importantly, what they should not do in helping a particular individual come to better know and understand him or herself.

See Also

Borderline Personality Disorder
Clinical Applications of Behavioral Theory of Personality
Narcissistic Personality Disorder

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Clinical Applications of Behavioral Theory of Personality

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History of Learning Theory

Aristotle anticipated behavioral psychology by recognizing that people come to associate contiguous events. And like behaviorists, he valued observational methods more than mere reflection. Philosophers such as David Hume came to view association as *the* basic mental process, and empiricism became the core of the scientific method. These lines of thought and inquiry in Western philosophy served as context for Russian physiologist Ivan Pavlov's studies of classical, or respondent, conditioning in dogs. While studying digestive processes in dogs, he noticed that the sounds and other cues preceding delivery of food had begun to elicit salivation and secretion of digestive juices. The naturally potent stimulus of food had become associated with previously relatively neutral preceding cues. Going on to thoroughly investigate this phenomenon, he was able to understand conditioning under controlled conditions, assess its generalization to similar stimuli and the discrimination that occurs with regard to less similar stimuli. He also measured the strength of association during the extinction of, spontaneous recovery of, and repeated extinction of conditioning.

Pavlov's work in turn informed that of prominent psychologist John Watson. He and Rosalie Rayner famously induced a conditioned fear in infant Little Albert. Sounding a gong after the presentation of a white rat, Albert developed a conditioned fear of the rat and similar white furry objects. A believer in John Locke's tabula rasa, Watson (1924) famously wrote, "Give me a dozen healthy infants...and I'll take any one at random and train him to become...doctor, lawyer...thief," reflecting behaviorism's (and empiricism's) emphasis on environmental influences such as conditioning. In addition to being able to induce a phobia, Watson developed counterconditioning strategies using relaxation, and Joseph Wolpe went on to pioneer systematic desensitization, involving relaxation and graduated exposure to feared stimuli. Versions of exposure therapy became and continue to be the treatments of choice for anxiety, trauma, and obsessive-compulsive behavior.

Having rejected introspective mentalistic approaches, Watson did not explain behavior via innate personality traits. In fact, behaviorists and personality psychologists have debated the importance of situational specificity versus consistency of behavior across situations. Studies in the 1920s and 1930s had shown correlations less than .30 among various measures of children's behavior across situations, which was taken to indicate the greater importance of situational factors than internal ones. Walter Mischel (1968) further advanced this argument, but others responded with strong evidence of consistency within individuals over time across methods of measurement, aggregating data from multiple situations (Epstein, 1979). In addition to observed behavior, some self-report measures have been shown to be stable and to be useful in prediction. One such example is self-reported vocational interest, which has been shown to be stable over time and predictive of career choice. There is general consensus in psychology that there *are* stable factors not related to intellect (such as introversion-extraversion), which interact with environmental stimuli in specific situations (such as the presence of others). Behaviorists, however, are more likely to approach manifestations of these dispositions in an idiographic way – emphasizing the behaviors of the individual in response to the changing environmental conditions – and more as patterns of behavior than personality characteristics per se.

Nature-nurture views that exclude nature have been tempered within behaviorism, not only by evidence of cross-situational consistency, but by recognition of the preparedness of species for certain types of conditioning, such as the demonstration by Garcia, Kimeldorf, and Koelling (1955) of the more easily learned associations made by rats between nausea and taste than between nausea and visual cues. When radical behaviorists have given short shrift to biological preparedness they have faced tough criticism. For example, Skinner's account of language acquisition in his book *Verbal Behavior* (1957), although arguably an important contribution at a level of fine detail and an excellent explication of his theory, was famously and harshly critiqued by linguist Noam Chomsky (1959) for exclusion of innate factors.

As learning theory developed, it increasingly addressed the effects of reinforcement on the behavior of the individual, a sort of second-generation theory regarding instrumental behaviors operating on the environment, building on the work of the earlier theory of respondent conditioning. Edward Thorndike's research with cats learning to escape puzzle boxes to access food and water yielded his Law of Effect. Clark Hull (1935, 1951) developed drive reduction theory, which in its time was a very popular theory of motivation. Stimuli in the environment led to responses by the organism, and if those responses helped satisfy needs of the individual – drives – then the responses had been reinforced. The best-known and lasting contributions in this vein, however, were those of B. F. Skinner; the term Skinnerian is often used regarding operant conditioning. Skinner intensively studied and described schedules of reinforcement, shaping, maintenance, extinction, generalization, and discrimination. Skinner's radical behaviorism treats even thinking as behavior, albeit covert, subject to environmental contingencies and not free will.

Origins of Clinical Psychology

Two Pennsylvania-born students of German physician Wilhelm Wundt, founder of experimental psychology, Lightner Witmer and James McKeen Cattell, were key in the beginnings of clinical psychology. Witmer coined the term "clinical psychology" and in 1896

opened the first psychology clinic at the University of Pennsylvania to help children with academic and other problems. Although he would have been aware of Freud's work, Witmer's approach was more behavioral than psychoanalytic. Cattell was interested in the measurement of individual differences, and developed mental tests that helped launch the clinical practice of psychology. From the early 1900s to the 1940s, psychologists provided testing in medical, educational, civil service and military settings, and soon began providing treatments based on either psychoanalysis or learning theory.

Clinical psychologists now study, assess, treat, teach about, and provide consultation regarding psychological conditions. Only a minority of today's clinical psychologists are predominantly behavioral in orientation, yet behaviorism has been assimilated into clinical psychology, and is essential even to the contemporary zeitgeist: cognitive behavior therapy enhanced with experiential strategies such as mindfulness and acceptance.

Behavioral Conceptualizations of Personality

Neal Miller and his colleagues believed that Freud's anxiety paradigm was analogous to classically conditioned fears maintained via negative reinforcement (reduction of anxiety during avoidance), and that internal conflicts could indeed result in psychological difficulties. Dollard, Miller, Doob, Mowrer, and Sears (1939) examined the aggression-frustration hypothesis, in which blocked goal attainment increased aggression. Building on Hull's drive reduction theory, Dollard and Miller (1950) concluded that internal drives, such as hunger, along with external cues and reinforcers, yielded predictions of the range of possible behaviors that might be emitted in a given situation.

Hans Eysenck, who advocated an understanding of personality that included introversion-extraversion and neuroticism as basic dimensions, was one of the strong advocates for the use of behavior therapy as opposed to psychodynamic approaches, citing studies showing a complete lack of effectiveness of psychoanalysis (Eysenck, 1952).

Arthur Staats (1986) formulated paradigmatic or psychological behaviorism, advancing the idea that learned repertoires of behavior form an individual's personality, at a neural level, and then affect ongoing reactions to environmental stimuli. Children build on basic behavioral repertoires to develop more complex repertoires in sensory-motor, language-cognitive, and emotional-motivational domains. The repertoires act as personal causes of behavior. For more on this blend of behavioral and traditional understandings of personality, see Staats's 1996 book on psychological behaviorism, listed in Further Reading.

Applications of Behavioral Theories in Assessment

Behaviorism does not draw inferences about personality traits other than as defined by behavior patterns. True behaviorists use reliably measured and operationally defined observation systems. These rigorous approaches have resulted in very different types of assessment from the traditional ones within the field. Using traditional nomothetic approaches (studying groups), it is sufficient that paper and pencil measures, interpreted by respondents in unknown ways, correctly classifying responses (and by implication, respondents) as similar or dissimilar to those of known groups with particular characteristics. Items are included

in traditional measures based on this criterion-keying technique. In other cases, instead of focusing on criterion validity, test developers primarily seek content validity, by including items that are, theoretically, logically related to the core areas of an issue of interest.

Functional analyses of behavior prior to intervention seek to determine through careful observation which aspects of the environment may be triggering and maintaining difficulties. For example, tantrums in response to demands may provide escape opportunities. Behaviorists also use these idiographic forms of assessment during treatment, looking at very specific behaviors and changes in frequencies and intensities of those behaviors over time. Statistical methods are sometimes used to evaluate these changes within individuals, and are frequently employed by psychologists (including behaviorally oriented psychologists) to examine changes within a treated group compared to controls. However, behavior analysts particularly value assessment that clearly demonstrates changes in observations at the level of individuals. Charts are used to plot specific operationally defined behaviors of these individuals over time. In order to convincingly demonstrate behavior change following an intervention, the behavior analyst first determines that there is a stable or worsening rate of the behavior in question. If there is concern over a behavioral deficit (e.g. eye contact), then worsening is reflected by decreases. If the concern is regarding a behavioral excess (e.g. interrupting), then worsening would be a pattern of increase. The shift to the treatment phase should be data-driven. Observation indicates the point at which changes associated with treatment can be interpreted less ambiguously, because treatment is less likely to be occurring in the context of already ongoing improvement.

However, even when changes in behavior are associated with implementation of a treatment intervention, there can still be a "history" confound – something else in the environment may have changed at that moment. To evaluate that possibility, treatment may be removed in a reversal design. If this return to baseline is associated with a worsening in behavior, then this provides evidence that the intervention was the key ingredient in change. However, there are often clinical reasons not to go back to baseline conditions. Also, behavior may not change back even in a reversal of conditions, perhaps because contingencies in the natural environment are helping to maintain new behavior patterns. Therefore, other forms of evidence are needed. One possibility is to use other types of phase shifts that intersperse various treatments with each other for comparison. Notably, control can also be demonstrated by the use of multiple baseline designs across individuals, behaviors, or settings. An intervention might be implemented with one client first, or in only one setting, or with only one of several behaviors, and then once changes occur with the first of these, treatment is begun for the second individual, setting, or behavior, allowing a replication at a different point in time.

In all of these assessments, the rising and falling levels of the frequency of observed behaviors allow the behavior analyst (or anyone) to eyeball the chart and infer real changes. Just as in statistical analyses, there is still important clinical judgment involved in what constitutes important change from a practical point of view. Similarly, the choice of targets for intervention is an important clinical issue, which should take into account the wishes and consent or assent of clients and guardians, consideration of the relative importance and appropriateness of targeting the various behaviors, the opportunities for success, and so on.

Applications of Behavioral Theories in Treatment

Modification of behavior (as Thorndike had put it) involves interventions based on operant conditioning principles. In behavior modification's purest form, applied behavior analysis (ABA), functional assessments of behavior are conducted to detect environmental contingencies and the possible functions of behaviors. Treatment decisions are facilitated by ongoing observation, using single-subject or small-*n* designs.

Clinical child psychology would be at a loss without operant approaches, especially for externalizing and developmental disorders. Behavior modification has been widely used very effectively for children with attention-deficit/hyperactivity disorder (ADHD) and oppositional defiant disorder. Behavior management is clearly effective for ADHD, though more careful training of clinicians in relevant reliable assessment and adherence to treatment protocols is needed. Making heavy use of reinforcement principles to shape more appropriate and less defiant behavior of chronically oppositional children has a great deal of evidence for effectiveness as well, and the approach has become well-disseminated, accessible, and popular.

B. F. Skinner himself was particularly astute in advocating reinforcement-based techniques rather than punishment. He wrote the utopian novel *Walden Two* about a society based on reinforcement. Although punishment suppresses behavior, it may also lead to (a) negative emotional reactions, (b) changes in behavior only when the person implementing punishment is present (signaling the likelihood of punishment), (c) no new learning of what *to* do (only what not to do), (d) suppression of desirable behaviors, and (e) from a social learning theory perspective, copying the modeled punitive behaviors.

ABA is the treatment of choice for children on the autism spectrum. Treatments pioneered by Ivar Lovaas at UCLA for children with autism use ABA, including discrete trials with highly specific instructions and frequent rewards. The Lovaas method and behavior therapy in general have not been without controversy. Specific concerns have been raised about uses of punishment. Unpleasant stimuli are sometimes used to punish dangerous self-injurious behavior, for example. The Association for Advancement of Behavior Therapies (now the Association for Behavioral and Cognitive Therapies) helped guide development of regulations regarding ethical treatment of human research subjects and patients.

Aversive conditioning is also controversial. Imaginal aversive conditioning in attempts to change sexual orientation at the request of patients was strongly criticized as both ineffective and inappropriate, and is now proscribed. On the other hand, aversive conditioning in other contexts such as smoking cessation or alcohol use disorder has generally been accepted, though not generally considered to be very effective except in highly motivated patients.

ABA has been widely shown to effect socially desirable change across a variety of behaviors and situations, many of which are documented in the *Journal of Applied Behavior Analysis*. As just one example, in education, behavioral training has shaped skills using immediate feedback and rewards to help students attain mastery of material.

Methods to promote generalization of behavior change across situations and maintenance of change over time were described in a highly cited article by Stokes and Baer (1977): Train with a variety of situational examples, include aspects of eventual settings, train in different

ways, address situations that do not show generalization, provide opportunities for existing contingencies in the environment to be helpful, use unpredictable reinforcement, give learners a language to understand the changes they need to make.

In clinical settings, behavior therapy has flourished in the treatment of a wide range of disorders. Even following the latter twentieth-century shift toward social learning theory (Mischel, 1973) and cognitive behaviorism, basic behavioral principles have continued to be integral in clinical applications. For example, although cognitive therapy is the principal psychological intervention for the most prevalent serious mental health difficulty, depression, behavioral activation (teaching how to appropriately schedule beneficial pleasant activities) has been found equally effective to cognitive approaches, and more effective than insight-oriented or client-centered approaches.

Although most behavioral interventions for psychological disorders are fairly brief, this is not always the case. Some behavioral deficits or excesses may require ongoing contingency management, and some psychological disorders benefit from longer-term treatment. Dialectical behavior therapy, a treatment for patients with emotion dysregulation, instability in relationships, and self-image problems, is the longest-running behavior therapy. It may extend over a several-year period. With caring provision of structure and training in a wide variety of skills, patients learn more adaptive ways of handling the distress associated with their internal and interpersonal difficulties. Social skills, assertiveness, and anger management techniques have also met with great success in a variety of populations and situations.

Behavioral medicine, which applies behavioral principles in the medical arena, has been beneficial in work with pain, stress and coping, adjustment to chronic illness, skills building, health-related lifestyle change, adherence to medical regimen, enuresis, encopresis, prevention of HIV, pill-swallowing phobias, diabetes management.

Operant approaches have been widely recognized as important in pain management. Pain behaviors and medication seeking often come under environmental control, further reducing levels of functioning and becoming associated with greater patient distress. Adaptive behaviors should be reinforced, but not maladaptive ones. Relatedly, putting medications on scheduled dosing rather than being given on as-needed basis has been shown to reduce escalation of pain behaviors between doses.

Behavioral techniques for dealing with stress and anxiety have included strategies such as progressive muscle relaxation, deep breathing, yoga, exercise, and exposure therapy.

Promoting adherence to medical regimen and healthy lifestyle has involved rearranging the environment to promote change: Reducing contact with discriminative stimuli for unhealthy behaviors (people, places, and things associated with poor choices), getting other people involved to help manage contingencies, and replacing old habits with new ones. Many other behavioral approaches have been used in various health-related conditions: Shaping procedures to train pill swallowing, role-play and rehearsal to inoculate against smoking initiation, cue-exposure in preventing substance abuse relapse, making painful procedures more predictable and thus less anxiety provoking. Painful medical procedures have been studied extensively by behavioral psychologists, especially for children. The behavior of others present during medical procedures turned out to be important in child coping and distress, and the children themselves have been successfully taught helpful skills.

Future Directions

The future will likely bring increasingly greater integration of behavioral clinical psychology into health care. Other health-care providers and third-party payers will continue to value coherent and applicable treatments that work. The parity of mental health conditions with other health problems is increasingly accepted. It is widely recognized that provision of mental health services reduces overreliance on other health services and that behavioral strategies are the key ingredient in prevention of health problems. Behavior therapy will continue to thrive in the current climate of measurable outcomes and cost-effective interventions.

Psychoanalysis gave us the talking cure. Humanistic psychology made empathy, warmth, and genuineness the *sine qua non* of psychotherapy. Behaviorism provided empirically developed theories of change and demonstrably effective applications. Evidence-based treatments that work are often drawn from the behavioral reservoir using precise and quantifiable outcome measures. Laws of behavior from learning theory inform our knowledge of our conditioned responses, how our behavior is affected by the environment, and how to effect behavior change. A failure to understand these principles is a failure to understand ourselves.

See Also

Behavioral Assessment Techniques, General Features and Methodological Issues
Behavioral Assessment Techniques of Personality in Children
Cognitive-Behavioral and Cognitive–Self-Report Assessment Techniques

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Clinical Applications of Humanistic Theory of Personality

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Humanism: The Third Force in Psychology

In 1956, Humanistic psychologist Carl Rogers and behaviorist B. F. Skinner engaged in a passionate debate (Rogers, 1989). This debate focused acutely on what precisely it means to be a human being. While Rogers emphasizes *inner* life, including will, choice, freedom, feelings, growth, courage, and self-actualization, Skinner emphasizes *outer life,* observable behavior, reinforcement modes, and issues of shaping and control. Skinner argued that the "personality" and inner life are fictions that are often used to account for reality, and that reality is primarily external. People, Skinner noted, are confused that their behavior is based on their "will" or "innerness" while in fact the cause of behavior is a history of external reinforcement from the past, in which actions have been met by consequences that have shaped them. Rogers, on the other hand, expressed dismay at this view of human life, and noted that his reality was filled with individuals with rich inner lives. He stated that feelings are vital and one must recognize and attempt to understand and accept them through Humanistic therapy. He notes that we have an inner compass that guides our activities. His big criticism of Skinner is that his is a world with no freedom or meaning, and that people are more like robots and are only shaped by external reinforcers. In Skinner's view, therefore, there is no room for creative behavior, which would deny the inner brilliance of a Beethoven, a Mozart, or a Picasso. For Skinner there is no possibility of a human being who is not *shaped*. One must assume in this view that the brilliant artists and performers were conditioned from birth on to express their genius. This vast contradiction in the two arguments points to a radical difference in what a human being is.

Further illustrating this contrast between humanistic therapy and behavioral therapy, Skinner and Rogers also engaged in a discussion on the purposes of psychology (Rogers, 1989). Skinner noted that the purpose was the prediction and control of human behavior. Rogers' response was that in his experience, the healthiest human behavior was spontaneous and not predictable. In humanism, there is the acceptance that we are not solely products of rewards and conditioning, but that we are creators as well. Some acts originate with

us, in the moment, and are not found elsewhere. Without that in-the-moment creativity, we would have no Einstein or Hemingway, or Tchaikovsky.

To add to Rogers' humanistic insights, it is valuable to understand that his view of the human condition is very positive. His argument is that when the ideal self and the actual image of a person are congruent, then that person is on balance and on the path toward Maslow's notion of self-actualization. Different from the deterministic emphasis in behaviorism and in Freudian Psychoanalysis, Rogers' humanistic outlook is imbedded in the belief that human beings have the capacity to grow toward their own highest state. We are, the humanists insist, packaged right at birth, and are turned away from our good health by wounds that occur from a myriad of sources. Different from the Freudian emphasis that sexual issues are the prime promoters of neuroses, the humanistic therapist assumes the position that it is a difficult world in which to grow up, and to get hurt is often inevitable. As the Gestalt therapists often note, the key to change in one's outlook is awareness – therefore, the therapist's task is to assist the client to become aware.

Existence and Essence

A primary question asked by the existential-humanistic psychologist might be what comes first, existence or essence. This question references two points of view, that of the classical philosopher versus that of the existential philosopher. The classical philosopher will say essence precedes existence, which tends to lend credence to a creator giving life to organisms. *I think, therefore I am*, is the classical line (Descartes, 1637, pp. 19–20). *I am, therefore I think*, is the existential retort. When the classicist insists that *I think, therefore I am*, comes first, the existentialist may ask, "What is the first word in your sentence? 'I' has to be there before you can think." An existential position might be that we are "thrown" into existence (perhaps by a deity, perhaps not), and from the moment we are born must make the decision to breathe and live, or not breathe, and die. From that instant on, existentialists say, though certainly at a cognitively naïve level in the beginning, we are responsible for choices in our lives. The humanistic psychologist embraces the existential credo that we have free will and are our own life designers. Another way to say it is that we are brought (or thrown) into existence without a predestined life prescription, and are steadfastly – though sometimes unevenly – devoted to refining our essence. Therapy, in that existential sense, is a process of helping to open one up to his or her natural potential.

Relationship

Humanistic therapists tell the apprentice that therapy is about the relationship, no techniques, no manipulation, no advice giving, and by encouraging *choice*, no behavior modifying (Glasser, 1998). Often the questions are asked, "But what do you do? How does it work? What do you say?" Historically, the humanistic-existential therapist has evaded such questions with responses such as: "You create a climate where the client feels safe. You prize the client. The client has a natural, organismic drive toward health. We are all self-correcting organisms. The relationship you create is what heals."

Since steps are not specifically spelled out, it is possible that the budding humanistic therapist may become frustrated and turn to more prescriptive approaches such as behaviorism or psychoanalysis. Humanistic professionals, however, see compelling reasons to select the humanistic-existential approach either for a client or a new student therapist.

Maslow (1954), considered a leading architect of humanistic psychology, proposed a hierarchy of motivational needs, from the lower-order physiological needs (food, shelter, and safety), to the psychological needs (love, belongingness, and self-esteem), to the higher-order growth needs (aesthetic needs and needs to know), and finally, what Maslow labeled self-actualizing needs. In Maslow's chart, one may only address the higher-order needs if the lower-order ones are at least minimally satisfied. What appeals to clients seeking therapeutic help is the nonjudgmental aspect of Maslow's self-actualization, and its egalitarian application in Rogers' person-centered approach. It is not a competition, but a striving toward one's own highest potential. Some people in the psychology field consider Viennese psychiatrist Alfred Adler to represent the origins of the Humanistic approach, though Adler was gone long before the Old Saybrook founding meeting of the Association for Humanistic Psychology. In contrast to Freud, Adler was considered a social psychologist that emphasized cultural involvement, family influences, birth order, and the rise from an inferiority position (born toothless, hairless, unable to speak, etc.) toward a life-goal of superiority. Adler also may have been the first truly feminist psychologist, who was quoted in *The New York Times* as far back as 1935 saying that women's being inferior to men was a colossal myth (Adler, 1935).

Why Humanistic Therapy?

In his newer books about Choice Theory, William Glasser (1938) applauds the twentieth century as one of technological triumph, but notes that it comes at the expense of social communion. Our children now can reach out to the cosmos, yet not know how to nurture each other. To Glasser (1938), a prime culprit in this disparity is "stimulus-response." He declares that no one truly responds to a stimulus; one responds out of personal choice, e.g. going through a stop sign at three in the morning, or deciding not to answer a ringing phone. Glasser insists that all behavior is chosen; therefore, one is responsible for all s/he does. Humanism as a psychology approach can only flourish in a culture that values Humanism as a philosophy. Many humanistic practitioners follow the existential writings of philosopher Jean-Paul Sartre and others in focusing on the importance of *being* and the meaning of life. This is a reaction to quick-fix therapies that endeavor to solve a single immediate problem and not go deeper. As Carl Rogers has expressed, a plant is neither good nor bad but rather grows to its healthy maturity given a nurturing environment of water, sun, and soil. In the same way, humans are not good or bad, and in a nurturing climate will strive toward their own organismic health (Rogers, 1987).

Humanistic practitioners believe their way may lead a troubled culture to find its healthy path. More than any other, humanistic-existential therapy *models* democracy, imposes upon the client least of all. Freedom to choose is maximized. Each person's human potential is validated. Many other therapeutic approaches advocate intake interviews and the

collection of historical data. The sessions themselves include note taking and a myriad of questions. From the humanistic perspective, the therapist wishes to encounter the client freshly, in the moment, with no pre-session bias, two people meeting and learning from each other. The therapist does not think of self as the expert one and the client as the poor, suffering, and by implication, *less than,* needy one. It has been expressed that the therapist may be an expert in the field of psychology but the client is the expert on him/her self. If one takes notes during a therapy hour, it means possibly missing bodily and facial expressions that provide valuable insight. The humanistic therapist tries to devote full attention to the client. As well, there is a sense of responsibility to the wider culture in the humanistic-existential approach. As far back as 1973, Walt Anderson, a member of AHP, wrote an incisive book, *Politics and the New Humanism,* wherein he writes that we do not do therapy in a vacuum but within a societal and political climate. He labels the old deterministic approaches as politically conservative, and humanistic psychology as promoting societal openness (Anderson, 1970).

Organizations and Publications

Paradoxically, the relationship and societal aspects of humanistic psychology, which encourage clients to grow and change along their own paths, caught on so well that other more prescriptive theoretical approaches not only borrowed, but also absorbed them whole cloth. The result is that the organization founded in the 1964 Old Saybrook meeting, The Association for Humanistic Psychology (AHP), has seen its membership dip from several thousand to less than a thousand. Though there is still a national board, AHP no longer has a headquarters (most recently in the Northern California area) but functions almost entirely online. Some see this as disturbing, yet others note that it is a grand achievement that the traditionally prescriptive cognitive, behavioral, postmodern, and even self psychology – a more modern version of psychoanalysis – have now adopted the principle that therapists create a caring, nonjudgmental connection with clients. Aside from AHP, the humanistic focus is the primary concern of Division 32 of the giant American Psychological Association (APA), so that there is clearly recognition of its ongoing value.

Abraham Maslow and Anthony Sutich founded the national *Journal of Humanistic Psychology* in 1958, and its first edition appeared in 1961. It remains the official journal of AHP as well as Saybrook Graduate School in California. It continues to be published as a quarterly research magazine by Sage Publications, located close to Los Angeles. Now retired, Dr. Tom Greening was the editor for over 35 years; he was succeeded by the current editor Dr. Kirk J. Schneider.

In California, on the campus of California State University, Northridge, several national humanistic conferences were presented in recent years. National conferences were routine 30 years in the past, rotating from East Coast to West Coast each year. Locations such as Boston, San Diego, Washington DC, and San Francisco were the sites of meetings where each time a few thousand people attended, with leaders in the field as presenters. However, the cost of putting on these conferences – which often took place in luxury hotels – became prohibitive. One in Tacoma, Washington, in fact, lost some 30,000 dollars. As a result, the

meetings were put on hold for a few years. In 2004, a conference organized and held in Northridge, CA, entitled, *Opening Hearts: Seeking Peace in A Chaotic World*, was a success in revitalizing the Association for Humanistic Psychology. Among the presenters were: Maureen O'Hara, President of Saybrook Graduate University; Natalie Rogers (Carl Rogers' daughter) who presented on Creative Arts For Peace; Carolyn Costin, founder of Monte Nido, a world-class residential facility for eating disorders; Jordan Paul, author of the best-selling novel *Do I Have To Give Up Me To Be Loved By You?*; Cuf Ferguson, president of AHP; Tom Greening, editor of the *Journal of Humanistic Psychology* for 35 years; Gerald Corey, author of 14 textbooks in the psychology field; and William Glasser, MD, author, and founder of Reality Therapy and Choice Theory. This conference was one of three offered at a university, which saved the Association for Humanistic Psychology some heavy expenses. Visitors from all over the country were housed in student dormitories, which again saved money. One salutary aspect of the humanistic tradition is that there have always been a number of volunteers who have contributed to the workshops' successes. With the new developments in technology, online correspondence is replacing some of the live conferences. Consequently, AHP's printed newsletter, *The Perspective*, is no longer printed out in hard copy. There is recently a renewed thrust to recruit more young people, mostly college psychology or family therapy students, into the fold.

A Clinical Operational Guide

Here are several practical points in applying a humanistic outlook in the therapeutic process:

Be Present: Client and Therapist

University of Southern California psychologist William Ofman called it H-E, humanistic existentialism, where he cites the personal encounter between him and his client as a microcosm of life (Ofman, 1976). *Be present* is the essence of his approach. What s/he is willing to do in the therapeutic encounter will be an appliqué on that client's life. Risks taken with the therapist are practice moments for risks to be taken with others. Equally important is an awareness that the healthiest personalities have the capacity to live fully in the present (Perls, 1969). Frederick (Fritz) Perls (1969) wrote that most present moments are not anxious and his phrase "Anxiety is anytime you leave the present" seems to be proven again and again in therapy work. Humanism tries to correct the saying: Happiness is something we remember, not something we experience (Levant, 1968). The psychologist may often ask the client, "What are you aware of right in this moment?" Perhaps the client may respond: "I'm aware that tomorrow I have to take an exam," to which the therapist may answer, "Not tomorrow; what are you aware of right here, right now?" The client may then realize, and say, "I hear cars going by outside, there is a plane going over, your carpet is red, my fingers are tingling…" The key to vibrant living is to be aware of one's present moment, and in the several minutes focusing in this exercise, the client cannot be anxious about the past or the future.

Act Responsibly: Client and Therapist

The humanistic-existential view is that there is absolutely no escape from personal responsibility. This is not laid out as a fiat or a warning; however, the therapist models responsibility – to be honest, and to confront the client in a nonthreatening yet unambiguous way. Responsibility is the antithesis of blame or fault. In a humanistic perspective, there ought not be BLAME, SHAME, FAULT, or GUILT (Charnofsky, 1997). The cat is blamed for spilling the milk. It's a shame when a game is lost. Guilt is for criminals caught in the act, and a fault is a jagged line in the crust of the earth. For humans, we are RESPONSIBLE for our life decisions, and for getting on with things despite disappointments and setbacks. It is often the task of the therapist to consult with a family where a teenager is acting out, the parents finding fault with their disobedient child. Parents may say, "Look what s/he is doing to us, and the humanistic reply may be: 'For them, not to you'." The teen is struggling for identity and that sometimes involves pushing away those who have been identifying him or her in the past. A humanistic way of addressing the adolescent about this is to remind him or her that the freedom being sought is partnered with an awesome twin: responsibility.

Listen: Client and Therapist

One vital point in the humanistic agenda is the manner in which the therapist presents him/herself to the client. It is as a profound listener rather than an interpreter or an analyst. Rogers never analyzed and regularly would work diligently to clarify what the client presented. With young students, there is too often the mindset that one must interpret the client's words and jump in to explain what is right or wrong about them. It becomes more of an imperative to sit across from clients with an attitude of "how does this person see her current life issues, and how can I clarify them for her." This also emphasizes a lack of judgment on the therapist's part – no good or bad scenario. It is often noted that there are no bad clients; clients simply present what they present, and the therapist must take it in as their way of seeing the world.

Provide a Stimulating Environment

Freud and followers stressed a barren external environment to allow a patient to go deep within, to encourage what came to be known as transference uncontaminated by extraneous stimuli. Carl Rogers once noted that to use the word *transference*, so vital in the Freudian repertoire, may completely miss the uniqueness of the I-Thou (borrowed from Jewish philosopher Martin Buber) encounter with this particular client (Rogers, 1987). In a humanistic sense, everything is part of life: color, music, and noise, including unavoidable interruptions. However, even in a pristine environment, the clients are treasure-chests of their own stimuli. They carry with them a bonanza of historical highlights and their presumed consequences. A quote sometimes seen on a poster that catches the essence of a stirring internal milieu comes from philosopher Albert Camus: *"In the midst of winter I finally learned that there was in me an invincible summer"* (6 January 1960).

Provide a Safe Environment

In Humanistic applications, the client's feelings of safety are paramount. Often, a client is in therapy because of a fear of one kind or another: loss of a person, health, freedom, and/or love. Fear may be the culprit in depression as well as anxiety, and certainly plays a role in what has come to be known as bipolar disorder. The therapist may suggest that clients visualize a familiar safe place and go there in their minds, or in group therapy offer a moment of "centering" where members breathe deeply and clear their thoughts. Some may call this *mindfulness*, the current popular phrase, though it is rather the same thing as Perls stressing awareness. As in all the Humanistic activity, participation is voluntary, not demanded. It defeats the notion of safety if the therapist takes the role of controller or pre-scriber. As Rogers (1987) has reminded: we must prize our clients as unique and capable individuals. Or, as Pablo Casals (1970), the brilliant cellist, once wrote (which fits nicely with the Humanistic view) we are all one-of-a-kind-marvels.

Look for Client Code Words

In humanistic therapy, there is respect for the client's ability to come up with key words or phrases that will help to assuage troubling patterns. One verbal report passed on by a prac-ticing therapist was about a client whose father had died of a heart attack at the age of 38. This client was constantly fretting about his health, managed to sabotage outings, and was often out of breath and choking. He told his therapist of a concert he and his wife were attending when he began to have his typical anxiety symptoms. His wife offered to turn around and go home (some might call her an enabler), but the man swallowed laboriously and told her, "Screw it! If I die, I die. Let's go in." The therapist used this person's own phrase, and each time he would begin to tumble to a low place, would remind him, "Remember, screw it!" It does little good for the therapist to invent the words that have meaning for the client. It is the client's task to use his or her own resources to move toward a natural state of better health.

Respect a Developmental Base

One need not presume that because existential theory and Gestalt therapy promote a present-time focus, a developmental history is to be ignored. Our history is what got us to where we are. However, as Alan Wheelis (1973), in *How People Change*, tells us, we are not trapped in our history; awareness cuts the chains that bind us to causative issues. It is vital to recognize that many therapies require expressed goals in a therapeutic encounter. In humanism, there may be perhaps only one specific goal for clients: *their enhanced aware-ness*. Harvey Jackins, in his book *The Human Side of Human Beings*, points out that we are all born zestful for life, spontaneous in demeanor, and supremely intelligent potentially (presuming no forebrain damage). What goes wrong with many of us can be expressed in three little words: *we get hurt*. Our zest shuts down, our spontaneity is blocked, and our intelligence is compromised by patterned, protective reactions to old hurts (Jackins, 1977). Jackins (1977) claims that healing from old hurts occurs through discharge of painful ten-sions, naturally done by children (crying when hurt, stomping and raging when angry,

shivering and shaking when frightened) but culturally suppressed by adults. Yes, we are influenced by our developmental histories, but we can recover our zest, spontaneity, and intelligence through awareness and emotional discharge, which permits us to reevaluate old hurts.

Realize That Affective Discharge May Precede Cognitive Restructuring

Cognitive therapists argue that a changed way of thinking will drag along with it emotional detritus (Beck, 1976). Humanistic therapists might argue the opposite: that our thoughts are scrambled because of affective dissonance, and one can only think straight after blocking emotions are discharged. Jackins (1977) notes instance after instance of such a sequential order, where someone has wept, raged, trembled, and sweated, and then says, in a calm voice, "Now I know what I have to do."

From a more humanistic perspective, the point is that until old, hurt patterns are flushed out through emotional discharge, full intelligent decision-making may not be available, though the therapist will rarely take an immutable stance on this. In a non-absolutistic sense, the Humanist will be open to cognitive change *sometimes* preceding emotional movement. There is perhaps an erroneous presumption from the public in the phrase: "Look how hurt she is, she's crying." In a humanistic analysis, hurt is instantaneous, and the discharge of tears is the beginning of the healing process.

Have a Willingness to Be Vulnerable: Client and Therapist

The willingness of the therapist to self-disclose invites a present-time encounter. It is not like a cocktail party "can you top this" game where the therapist has a juicier story than the client. Yet, appropriate self-revelation provides a genuineness and says, "I am a person too and I have experienced hurt as well." Some therapists will demur when it comes to any self-disclosure, citing the Freudian notion that the analysis is for the patient and s/he need not know about the therapist. Yet, the ability of the therapist to self-disclose in a way that benefits the client can be healing, and is a product of the therapist's own emotional health. One way to put it is that the therapist needs to have worked through personal issues enough to have "margins of good health" somewhat like the self-actualizing people described by Abraham Maslow (Maslow, 1954). One therapist reported a client who had been in the military, isolated from any female companionship, who engaged in a sexual act with another man. It only happened once, however the client was confused about his sexual orientation. The therapist noted that he then took the interactive risk to say, briefly but with sincerity, that he too had once and only once had such an episode with a man. He said that he stopped after that revelation, yet it seemed to give his client some sense of mutuality.

Be Aware That All Choices Are for Self-Enhancement

To say that people will choose what is perceived as self-enhancing is not to say they are all monuments to selfishness. If a child were in the street and a car were bearing down, one might choose to knock the child away even at the cost of his or her own injury or life. The humanistic therapist honors that behavior is chosen for perceived, valid personal reasons.

If we choose behavior that enhances us, however mysterious to outsiders, then we become responsible for our life conditions. A professor (a personal colleague) once shared that he told his graduate students that people will *always* do what they perceive as most enhancing to themselves, the key word being perceive. In visiting a state mental hospital, he showed his class a young teen, sitting rigid, staring at the wall. The group toured the facility and returned an hour later to see the boy, unmoved, still staring at the wall. One student asked how that could be most self-enhancing, that the boy was hurting himself with that behavior. His humanistic professor replied, "From whose perspective? From an outside view, we might judge the boy, but from his internal perspective, everything else may be more threatening than to pull himself into a ball and sit silently." There is a caution to this notion of personal responsibility, since people are not responsible for things beyond their control: toxins that invade their bodies, acts of nature, accidents, or some misguided leader's misdirected bombs.

Therapy: A Rush To Fix Things?

In these nine operational suggestions, it may be seen that Humanistic therapists have the intent to uplift their clients to their own highest level of functioning. Integrated people (like Thoreau, Gandhi, Cesar Chavez), as noted above, are able to evaluate the panorama of human events they encounter with clear eyes and incisive choices, even if they go against a hallowed rule or sanctified law; they take appropriate emotional risks. Humanistic therapists are aware that they have learned to be therapeutic (and hope their clients have as well) not only in the hours in therapy, but for all their life transactions. In Humanistic promotional language, it is said that one cannot become a therapist without the process being life-changing.

It is an artifact of third-party insurance requirements that present-day therapies may often be limited to a few sessions. The charge is to cure the patient of his or her neurosis quickly and certainly. The possible fallacy in this fiat is that the word "cure" may narrowly mean a cessation of a certain behavior, but with no attention to underlying causes or a deeper sort of malaise. A critique of insurance-driven therapy includes the objection to what is called "labeling." The need for diagnosis is recognized, since there are symptoms that can be attached to certain unproductive behavior. However, it can be damaging to attach a stigmatic name to a person's unhappiness, a label that may follow that person throughout life. Clarity in one's search for authenticity can take a heavy investment of time and energy. Rogers (1987) once noted: "I must constantly resist the temptation to rush in and fix things."

Given the present enormous variety of therapeutic approaches, the application of Humanistic Psychology stands out as one that functions to empower clients rather than fix them. Powerful people will make appropriate decisions to fix themselves. A phrase that has been used in educating therapists is: "If we do our job well, we do ourselves out of a job."

J. F. T. Bugental, AHP's first president, called the humanistic emergence 'The Third Force' in psychology. He noted that human beings are intentional, aim at goals, are aware that they cause future events and seek meaning, value, and creativity (Bugental, 1964).

See Also

Abraham Maslow
Carl Rogers
Clinical Applications of Humanistic Theory of Personality
Clinical Applications of Psychodynamic Theory of Personality

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Clinical Applications of Cognitive Behavioral Theory of Personality

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> *"Your life is what your thoughts make it."*
>
> Marcus Aurelius

Cognitive behavioral therapies (CBT) propose a model of general psychopathology and a theory of behavior change that integrates diverse psychotherapeutic procedures, that is sensitive to a biopsychosocial perspective of medical and psychological disorders, and is tied to empirically demonstrated interventions. In the past, various schools of psychotherapy (e.g. psychodynamic, behavioral, and humanistic) have been offered as competing approaches, with little proposed overlap. In recent years, there has been an effort to develop an "integrative" approach of psychotherapeutic techniques that have demonstrated empirical basis of efficacy. CBT has been at the forefront in this integrative movement. CBT has demonstrated the beneficial effects of psychotherapy in not only alleviating distress, but also in reducing the likelihood of subsequent relapse of psychological and behavioral dysfunction (Khanna & Kendall, 2010 Meichenbaum, 1997; Walkup et al., 2008; Whiteside et al., 2016).

What Is CBT?

As Mahoney and Arnkoff (1978) aptly observed, under the heading of CBT are many diverse psychotherapeutic procedures including cognitive therapy, cognitive restructuring procedures, rational-emotive psychotherapy, problem-solving interventions, coping skill training such as stress inoculation training, panic control techniques, and self-instructional training, to name just a few. One should not impose a "uniformity myth" on these diverse therapeutic procedures since they have different theoretical perspectives, different modes of implementation, and have different outcomes.

Despite these differences, there are some common features to all CBT approaches that can be delineated. At the theoretical level, CBT embraces a biopsychosocial perspective that emphasizes the reciprocal interdependence of feelings, thoughts, behavior, resulting consequences, social contexts, and physiological processes, namely, a reciprocally deterministic approach as described by Meichenbaum (1977). Simply, CBT is based on the belief in the connection between thoughts, feelings, and behaviors. The goal in CBT is to modify or change both the client's or patient's thoughts and behaviors. While early CBT theorists have highlighted cognitions as being a central or primary in the psychotherapeutic process, noting that cognitions, in the form of irrational beliefs (Ellis, 1977) or cognitive distortions and errors (Beck, 1976), cause emotional disturbance and maladaptive behaviors, more recent forms of CBT have taken issue with such a rationalist and objective position. As Mahoney (1988) observes, rationalist therapeutic approaches attempt to have patients monitor and correct "disturbed" or "irrational beliefs" and "faulty logic." This rationalist approach attempts to help patients develop more accurate and objective views of reality by such means as logical disputation, instruction, personal experiments, whereby patients can collect empirical evidence in an effort to test their beliefs against external reality.

In contrast, many emergent forms of CBT have embraced a more constructionist perspective (Meichenbaum, 1997). The constructionist perspectives based on the notion that individuals are "architects" or "constructors" of their environments and it emphasizes how individuals behave may inadvertently, perhaps unwittingly, and even unknowingly, create reactions in others that confirm their beliefs about themselves and the world. The constructivist perspective emphasizes that individuals "construct" their personal realities or narrative stories and literally create their own representative models of the world. It is not, as if there is one reality and our patients distort that reality, thereby contributing to their problems. Rather, constructivists propose there are multiple realities, and the task of therapy is to help patients become aware of how they create their realities and the consequences of such personal constructions. The shift from a "rationalist-objective perspective" is not just a shift in semantics but a shift that has important implications for both assessment and treatment.

An additional salient and common feature of CBT is that it tends to be short-term, typically less than 20 sessions, although Linehan (1993) used a one-year CBT intervention to reduce suicidal behavior with borderline patients. No matter what the length of the CBT treatment, the intervention tends to be highly collaborative between patient and therapist, often using Socratic questioning techniques and discovery-based interventions. CBT also tends to be proactive in encouraging patients to use personal experiments or "homework" between sessions. Another common, important feature of CBT interventions is the inclusion of relapse prevention (RP) procedures. While RP was initially emphasized by Marlatt and Gordon (1985) with patients with addictions, RP is typically used with all forms of CBT interventions. In RP, patients explore the nature of high-risk situations that are likely to contribute to lapses and that can escalate into becoming full-blown relapses. In therapy, patients rehearse how to anticipate and manage such lapses.

Finally, CBT is sensitive to the critically important role of the relationship and those emotional factors evident in the therapeutic process. In addition to the collaboration between patient and therapist, salient factors involving warmth, empathy, emotional attunement, acceptance, providing hope, reinforcing patient efficacy, and developing a

therapeutic alliance are all therapist variables emphasized in CBT (Hawton et al., 1989). In summary, CBT across all variations recognizes the importance and inseparability of therapeutic techniques, personal qualities of the therapist, and the nature of the therapeutic relationship.

Historical Perspectives

CBT has two main influences: first, behavior therapy (BT) as described Joseph Wolpe and others in the 1950s and 1960s; and second, the cognitive therapy approach developed by Aaron T. Beck, beginning in the 1960s but becoming far more influential with the "cognitive revolution" in psychology beginning and flourishing in the 1970s and 1980s (Westbrook, Kennerly, & Kirk, 2007).

BT arose as a reaction against the Freudian psychodynamic paradigm that had dominated psychotherapy from the nineteenth century onward. In the 1950s Freudian psychoanalysis was questioned by scientific psychology because of the lack of empirical evidence to support either its theory of its efficacy. BT was strongly influenced by the behaviorist movement in academic psychology, which stipulated that what went on inside a person's mind was not directly observable and therefore not amenable to scientific study and empirical validation. Instead, behaviorists sought reproducible associations between observable events, particularly between stimuli (features or events in the environment) and responses (observable and measurable reactions from the people or animals being studied). Learning theory, a major model in psychology at that time, sought general principles to explain how organisms learn new associations between stimuli and responses. In this way, BT avoided speculations about unconscious process, hidden motivations, and unobservable structures of the mind, and instead used the principles inherent in learning theory to modify unwanted behaviors and dysfunctional emotional reactions. BT rapidly became successful, especially with anxiety disorders, because BT always had an empirical approach, which allowed it to provide solid evidence that it was effective in relieving anxiety problems, like phobias and obsessive-compulsive disorders, and BT was a far more economical treatment than psychoanalytical therapy, typically taking from six to five sessions (Westbrook, Kennerly, & Kirk, 2007).

Despite this success, there remained some dissatisfaction with the limitations of a purely behavioral approach (see Meichenbaum, 1997). Psychological processes such as thoughts, beliefs, interpretations, and imagery, for example, are such an obvious aspect of life that it seemed almost absurd for modern psychology not to deal with these aforementioned processes. In addition, it was believed that once BT techniques were altered to become more sensitive to patients' thoughts and emotions, then treatment efficacy would also improve (Westbrook, Kennerly, & Kirk, 2007).

During the 1970s, this dissatisfaction developed into what became known as the "cognitive revolution," whereas ways were sought to bring cognitive phenomena into psychology, theories of psychopathology, and therapy while still trying to maintain empirical approaches that would avoid ungrounded speculation. Beck, and others like Albert Ellis (1977), began to develop cognitive therapy (CT) during the 1960s but their ideas became increasingly influential by the late 1970s. For example, the publication of Beck's book on CT for depression

(Beck et al., 1979) and research trials demonstrating that CT was effective as a treatment for mild to moderate depression as anti-depressant medication reinforced the revolution. Over the next several decades, BT and CT grew together and influenced each other to such an extent the resulting combination is now most commonly known as CBT. It would appear that CBT has currently emerged as one of the most endorsed and studied therapeutic approaches in psychology (Craighead, Miklowitz, & Craighead, 2013).

Basic Principles

As mentioned previously, CBT proposes a "biopsychosocial" explanation as to how human beings come to feel and act as they do – i.e. a combination of biological, psychological, and social factors become involved. The most basic premise is that all human emotions and behaviors are a result of what individuals think, assume, or believe (about themselves, other people, and the world in general). It is what people believe about situations they face, not the situations themselves that determines how they feel and behave. CBT involves an interacting system where problems can be perceived as interactions between thoughts, emotions, behavior, and physiology, as well as with the environment in which the individual functions. Environment in this premise involves not just the obvious physical milieu for the person but also the social, family, cultural, and economic environment (Froggatt, 2009).

   In ordinary life, if we ask people what made them sad (or happy, or angry, etc.), they will often offer accounts of events or situations: for example, "I am angry because I just had an argument with my spouse." However, it is not that simple. If an event automatically gave rise to an emotion in such a straightforward manner, then it would follow that the same event would have to result in the same emotion for anyone who experienced that same event. What can be actually observed is that to a lesser or greater degree, people will react *differently* to similar events. Even events as obviously terrible as suffering or bereavement, or being diagnosed with a terminal illness, do not produce the same emotional state in everyone: some may be devastated by such events, while others cope reasonably well. If it is not the event, then, that determines the emotional response, there must be additional factors. CBT stipulates that one salient additional factor is cognition or the interpretations people make of the event. When two people react differently to an event it is because they are perceiving it differently, and when one person reacts in what seems to be an unusual or even dysthymic way, it is because s/he has idiosyncratic thoughts or beliefs about the event and the event has idiosyncratic meaning for her/him.

   Another example elaborates on the centrality of cognition in emotional response. Suppose you are walking down the street and you see someone who you know coming the opposite direction, but he/she does not seem to notice you. There are a number of possible thoughts about this event and a number of possible emotional responses arising from those cognitive interpretations. For instance, you could think, (a) "I can't think of anything pertinent to say to her/him, therefore s/he must think I'll really boring," resulting in feelings of anxiety in social situations; (b) "Nobody would ever want to talk to me anyway because no one seems to like me," leading to feelings of depression and/or despondency; (c) "S/he has some nerve being so snobbish, I have not anything wrong to deserve this," resulting

in feelings of anger, and (d) "S/he is probably still hung over from the party last night!" leading to feelings of amusement. This emotional episode consists of an activating event ("A"), beliefs ("B") about the activating event ("A"), and the consequences ("C") in both emotions and behaviors. Therefore, "A" does not necessarily cause "C"; "A" triggers "B"; "B" then causes "C." Such ABC episodes developed by Ellis (1977) do not stand alone and will run in chains with a "C" often becoming the "A" of another episode. Humans observe our own emotions and behaviors and react to them. For instance, the person in the example above could observe their avoidance of other people ("A"), interpret this as weak ("B"), and engage in self-doubting ("C").

From this example alone, several different cognition interpretations can give rise to several different emotions. It also demonstrates the association between certain kinds of cognition and corresponding emotional states. For example, thoughts about others being unfair, or breaking rules that we may hold dear, are likely to be associated with anger. There is, of course, nothing new about the idea that meaning and cognition are crucial. The ancient Greek stoic philosopher, Epictetus, proposed over 1,880 years ago that, "Men are disturbed, not by things, but by the principle and notions which they form concerning things" (Westbrook, Kennerly, & Kirk, 2007, p. 4).

CBT supports the premise that behavior can have a strong impact on thought and emotion, and, in particular, changing what you do is often a powerful way of changing both thoughts and emotions. CBT also supports the premise that psychological problems arise from exaggerated or extreme versions of normal processes, rather than as pathological states that are qualitatively different from, and inexplicable by, normal states and processes (Westbrook, Kennerly, & Kirk, 2007). In other words, psychological problems can be conceptualized at one end of a continuum, not in a different dimension.

Furthermore, CBT has incorporated a BT approach that the main focus of treatment, for most of the time, involves what is happening in the "here and now" or in the present. Therapy focuses on those processes currently maintaining the problem, rather than the processes that might have led to its development many years ago. Psychoanalytic proponents have argued that treating symptoms rather than the supposed root causes would result in symptom substitution or the emergence of new client symptoms secondary to unresolved unconscious conflicts. Extensive BT research, however, demonstrated that, although possible, such findings were, in fact, rare. More commonly addressing symptoms directly actually resulted in more global improvement. Finally, CBT is based on empirically valid, sound, well-established scientific theories. Ethically, recipients of CBT should know whether treatments they receive are effective. Economically, recipients of CBT should also know that limited mental health resources are being used in a cost-effective manner (Westbrook, Kennerly, & Kirk, 2007).

Levels of Cognition

As described previously, "cognition" is not a single concept. Instead, CBT distinguishes between different levels of cognition that often serve as a means of classifying various CBT techniques. Some common levels of cognition in CBT are briefly described here.

Negative Automatic Thoughts (NATs)

NATs, as first described by Beck (1976), are fundamental to CBT. The term describes a stream of thoughts that are negatively tinged appraisals or interpretations or meanings individuals take from what happens around them or within. For example, if one is anxious, one might have thoughts about the threat of something bad happening to themselves or people one cares about; if one is annoyed, one might have thoughts about others being unfair, or not following rules one considers important; if one were angry, there might be thoughts about loss, personal defeat, or negative views of oneself.

NATs can exert a direct influence over mood from moment to moment and are of crucial importance to CBT. Subsequently, NATs are often focused on early in treatment. NATS will often just happen, automatically, and without effort (although it may take some effort in treatment to focus on them). In chronic problems, NATs tend to be stereotypic, but they can vary in frequency, intensity, and duration. NATs can be habitual and often seen as plausible and true, especially when emotions are intense. One crucial step in CBT is to help patients consider the accuracy of their NATs by learning that thoughts are opinions and not facts, and like all opinions, they may not be accurate. At first it appears that NATs are verbal constructs (e.g. "I am useless") but, in fact, can also take the form of visual images, as can be observed in social anxiety where the patient may also have a mental image of themselves looking red-faced, sweaty, and speaking incoherently at a party.

Core Beliefs

Core beliefs represent individuals' fundamental beliefs about themselves, other people, or the world, in general. Most of the time core beliefs are not immediately conscious but can be inferred by observations of one's characteristic thoughts and behaviors in various situations. Core beliefs can be observed as general and absolute statements (e.g. "I am incompetent" or "others cannot be trusted"). Unlike NATs, core beliefs do not vary across times or situations but are seen by the individual as fundamental truths to be applied in all situations. They are usually learned early in life secondary to childhood experiences, but can develop or change later in life, for example, as a result of trauma. Core beliefs are often dealt with later in CBT and can be important in therapy for chronic disorders, such as personality disorders (Westbrook, Kennerly, & Kirk, 2007).

Dysfunctional Assumptions (DAs)

DAs can be considered rules for living and functioning and can serve to bridge the gap between NATS and core beliefs. They often take the form of conditional "if...then" propositions, or are framed as "should" or "must" statements, and represent attempts to function with negative core beliefs. What makes DAs dysfunctional is they are too rigid and over generalized, not flexible enough to cope with the inevitable complications and setbacks in life. Some DAs may be culturally reinforced, such as putting others first or the importance of success, for example. Modifying DAs often assist in making patients more resistant to future relapses and thus are dealt with in the later stages of CBT. For example, if a patient believes that s/he is fundamentally unlovable may develop the faulty assumption that

"If I always try to please others, then I will be tolerated," but "If I assert myself, possibly displeasing others, I will be rejected." This DA offers the patient a guide to live her/his life as to overcome some of the feared effects of the core belief, but this is both a fragile and futile effort. If the patient fails to please someone, then the patient is in trouble. When a DA is violated, then NATs and strong dysphoric emotions are likely to be triggered (Westbrook, Kennerly, & Kirk, 2007). While core beliefs are more general than NATs, that does not mean they are more important. Most successful CBT research targets NATs, but that does not make therapy ineffective or short-lived. Patients with problems like depression or anxiety have a range of core beliefs, not just negative or dysfunctional ones. CBT also assists in bringing patients, more positive beliefs back into prominence. This may be especially pertinent to those patients with coexisting, long-term personality disorders where there is often a paucity of positive beliefs (Tolin, 2016).

CBT theories include characteristic patterns of cognition associated with particular kinds of problems. These characteristic patterns involve both the content of cognition and the process of cognition. In depression, for example, the thoughts of depressed people are likely to contain characteristic contents, e.g. negative thoughts about themselves or others. Depressed people are also likely to show characteristic general biases in the way they think, e.g. toward perceiving and remembering negative events more than positive ones; or tending to see that anything that goes wrong their fault; or overgeneralizing from one small negative event to a broad negative conclusion.

In anxiety, the general process is a bias toward the overestimation of threat or perceiving a high risk of some unwanted outcome. The exact nature of the threat, and therefore the content cognitions, is different in different anxiety disorders. For example, in panic disorder, there is catastrophic misinterpretation of harmless anxiety symptoms as indicating some imminent disaster such as dying or losing all control of oneself. In health anxiety, there is a similar misinterpretation of harmless physical symptoms as indicating severe illness, but on a longer duration (e.g. "I might have a disease that will eventually cause me to die"). In social anxiety, thoughts generally involve being negatively evaluated by others (e.g. "they will think I am stupid or boring or strange should I speak"). Finally, in obsessive-compulsive disorder, for example, thoughts are typically about being responsible for and/or needing to prevent some harm to oneself or others (Westbrook, Kennerly, & Kirk, 2007).

In summary, Westbrook, Kennerly, and Kirk (2007) note that CBT proposes that through experience (most often childhood experience, but sometimes later experiences as well), individuals develop core beliefs and assumptions that are typically functional and allow them to make sense of life and manage through it. Most individuals have a mixture of functional and dysfunctional beliefs, with the functional ones allowing them to cope reasonably well most of the time. Even dysfunctional beliefs may not cause particular problems for many years. However, if one should encounter an event or series of events that violates a core belief or assumption and cannot be managed by more positive beliefs (often called a "critical incidents"), then DAs become more salient and active. Negative thoughts are evoked, and unpleasant, dysphoric emotional states such as anxiety or depression result. Interactions between negative thoughts, emotions, behavior, and physiological changes may then result in persisting dysfunctional patterns and vicious cycles or feedback loops that serve to reinforce and maintain the problem. In summary, Tolin (2016) identified several of the core essentials inherent in CBT to include: (a) having reasonable

and meaningful goals for treatment; (b) using the best scientific evidence in understanding the problem, and selecting empirically valid approaches to treat the problem; (c) using hypothesis testing that may need to be modified for accuracy in treatment; (d) being focused, time-limited, present-oriented, active, and directive emphasizing measureable goals and testable hypotheses; and (e) identifying the core pathological process as the interaction among maladaptive behaviors, thoughts, and emotions.

Applications and Efficacy

Space does not permit a detailed meta-analysis of numerous CBT procedures for diverse populations. A number of comprehensive reviews are available (e.g. Meichenbaum, 1997; Butler, Chapman, et al., 2006; Westbrook, Kinnerly, & Kirk, 2007; Hofmann & Smits, 2008; Hofmann, Asnaani, Vonk, et al., 2012; Craighead, Miklowitz, & Craighead, 2013; Tolin, 2016; Whiteside et al., 2016). This section will provide a broad overview of a wide variety of efficacious applications of CBT with adult populations, followed by some additional examples demonstrating the efficacious application of CBT with youth and international populations.

Roth and Fongay (2005), in their review of psychotherapy efficacy, report evidence showing that CBT is strongly supported as a therapy for most of the psychological disorders in adults that they studied, and has more support in more kinds of problems than any other therapy. In addition to the evidence for efficacy with CBT in well-controlled research trials, there is also evidence demonstrating that it can also be effective in clinical practice, outside specialized research centers (e.g. Tolin, 2016).

Leahy (2003) identified over 30 specific techniques used in CBT. Some common techniques used in CBT include: (a) cognitive techniques (e.g. rational analysis, disputation, catastrophe scaling, role playing, reframing); (b) imagery techniques (e.g. time projection, "worst-case" scenario technique); (c) behavioral techniques (e.g. exposure, desensitization, hypothesis testing, stimulus control, paradoxical behavior, delayed gratification, contingency management, modeling); (d) skill training (e.g. self-instruction, relaxation exercises, biofeedback training, mindfulness and meditation training, social skills, problem-solving); and (e) record, log, journal, and diary keeping for self-education. In addition, Froggatt (2009) identified numerous clinical problem areas where CBT has been used with specific populations. These problem areas include: depression; bipolar affective disturbances; anxiety disorders (obsessive-compulsive disorder, phobias, generalized anxiety disorder, posttraumatic stress disorder, hypochondria and health anxiety); psychosis and schizophrenia; eating disorders; weight control; addictions; smoking cessation; sexual dysfunction; impulse control disorders; anger management; antisocial disorders; sexual abuse recovery; personality disorders; adjustment to chronic health problems and physical disability; pain management; general stress management; child and adolescent behavior disorders; and relationship and family problems. The most common use of CBT continues to with individual patients and clients (including children, adolescents, and adults), but this is closely followed by group work, for which CBT can be also well suited. CBT can also be used with couples and families (Froggatt, 2009).

Butler, Chapman et al. (2006) summarized the meta-analysis literature on treatment outcomes of CBT for a wide range of psychiatric disorders. A search of the literature resulted in a total of 16 methodologically rigorous meta-analyses. The authors' review focuses on effect sizes that contrast outcomes for CBT with outcomes for various control groups for each disorder, which provides an overview of the effectiveness of CT as quantified by meta-analysis. Large effect sizes were found for CBT for unipolar depression, generalized anxiety disorder, panic disorder with or without agoraphobia, social phobia, posttraumatic stress disorder, and childhood depressive and anxiety disorders. Effect sizes for CBT of marital distress, anger, childhood somatic disorders, and chronic pain were in the moderate range. CBT was somewhat superior to antidepressants in the treatment of adult depression. CBT was equally effective as BT in the treatment of adult depression and obsessive-compulsive disorder. Large uncontrolled effect sizes were found for bulimia nervosa and schizophrenia. The 16 meta-analyses reviewed support the efficacy of CBT for numerous psychological disorders.

Hofmann and Smits (2008) noted a weakness of meta-analyses involving psychotherapy research is related to the quality of the original studies. In particular, a number of frequently cited meta-analyses of CBT for anxiety disorders have included studies that vary greatly with respect to control procedures, which range from waitlist, alternative treatments, and placebo interventions that were evaluated with or without randomization. Other studies fail to include any control groups. Subsequently, the authors argue the results of most existing meta-analyses of CBT for anxiety disorders, for example, are of limited validity because the quality and rigor of meta-analyses is directly related to the quality and rigor of the studies that are included in these analyses.

The gold-standard design in clinical outcome research is the randomized placebo-controlled trial. Although not without problems, this design has been used as the primary test of the direct effects of the treatment on outcome in clinical research. Pharmacotherapy trials, for example, typically administer a sugar pill to individuals in the placebo condition. Instead of including a pill placebo, a number of psychotherapy trials have employed psychological placebo conditions to control for nonspecific factors. Although it is difficult, if not impossible, to protect the blind in placebo-controlled psychotherapy trials, the randomized placebo-controlled design is still the most rigorous and conservative test of the effects of an active treatment.

The primary aim of the Hofmann and Smits (2008) study was to determine the acute efficacy of CBT as compared to placebo for adult anxiety disorders. In contrast to existing meta-analyses of CBT for anxiety disorders, the authors limited their selection to randomized placebo-controlled trials of DSM-III-R or DSM-IV anxiety disorders that directly compared the treatment efficacy of CBT with a placebo condition. The authors further expanded their search to all types of anxiety disorders in order to compare the effects of CBT for the various anxiety disorders and explored the potential moderating effects of number of treatment sessions, placebo modality (pill vs. psychological placebo) and publication year. The strongest effect sizes were observed in obsessive-compulsive disorder and acute stress disorder, and the weakest effect size was found in panic disorder. The advantage of CBT over placebo did not depend on placebo modality, number of sessions, or study year. Hofmann and Smits (2008) review of randomized placebo-controlled trials indicated that CBT is efficacious for adult anxiety disorders.

Hofmann, Asnaani, Vonk et al. (2012) provided a comprehensive survey of meta-analyses also examining the efficacy of CBT. The authors identified 269 meta-analytic studies and reviewed of those a representative sample of 106 meta-analyses examining CBT for the following problems: substance use disorder, schizophrenia and other psychotic disorders, depression and dysthymia, bipolar disorder, anxiety disorders, somatoform disorders, eating disorders, insomnia, personality disorders, anger and aggression, criminal behaviors, general stress, distress due to general medical conditions, chronic pain and fatigue, and distress related to pregnancy complications and female hormonal conditions. Additional meta-analytic reviews examined the efficacy of CBT for various problems in children and elderly adults. The strongest support existed for CBT of anxiety disorders, somatoform disorders, bulimia, anger control problems, and general stress. Eleven studies compared response rates between CBT and other treatments or control conditions. CBT showed higher response rates than the comparison conditions in seven of these reviews and only one review reported that CBT had lower response rates than comparison treatments. In general, the evidence-base of CBT is very strong. However, the reviewers noted additional research is needed to examine the efficacy of CBT for randomized-controlled studies. Moreover, except for children and elderly populations, the authors noted no meta-analytic studies of CBT have been reported on specific subgroups, such as ethnic minorities and low-income samples.

The relative effectiveness of CBT is not limited to psychiatric disorders, but has been expanded to physical disorders as well. Turk and Salovey (1993) reviewed over 15 controlled studies demonstrating the effectiveness of CBT interventions for a wide range of physical illnesses and disabilities including headaches, arthritis, tempomandibular pain disorders, low back pain, spinal cord injuries, functional somatic symptoms, and cancer, to name a few. These approaches have been used successfully with patients across the age span from adolescents to geriatric patients. Finally, Meichenbaum (1997), in his review of several controlled studies demonstrating the effectiveness of CBT approaches with medical patients, also highlighted the additional benefit of reduced medical utilization costs when CBT was utilized.

Noting the wide range of emotional and behavioral problems manifested by youth, both children and adolescents, CBT is an effective and proven therapeutic approach (Hughes, 1988; Webb et al., 2014). When considering the application of CBT with children and adolescents, current research has demonstrated strong efficacy for its use across a variety of diagnostic issues including anxiety, trauma, insomnia, and suicide. Further, there are several studies that also demonstrate a high degree of efficacy when using CBT with children or adolescents from various other countries including Tanzania and Kenya (Woods-Jaeger, Kava, Akiba, Lucid & Dorsey, 2016), Switzerland (Schneider et al., 2013), and the Netherlands (van Steensel & Bögels, 2015). However, it should be noted that the application of CBT, or any other theoretical approach with children and adolescents is not a simple one-to-one conversion from those used with adults. Kendall (2013) states "Youth face different developmental challenges as they move through childhood and adolescence, and these youth differ in their ability to recognize a problem, manage their emotional arousal, and to generate and consider possible solutions" (p. 4). This requires the understanding and adaptation of CBT treatments and interventions to consider not only the specific disorder, but also based upon the youth's current developmental level. Requiring

the practitioner to be aware of and consider the current developmental stage of their young client is a critical component to success when working with young populations.

When considering examples of current CBT treatment approaches with various psychological disorders, the research literature is replete with a wide range of examples, of which most demonstrate a positive impact. For example, for the treatment of childhood anxiety disorders the American Academy of Child and Adolescent Psychiatry (AACAP) (2007) lists CBT as the preferred evidence-based treatment. Numerous studies have shown the positive impact of using CBT for treating anxiety in youth (e.g. Kendall, Hudson, Gosch, Flannery-Schroeder & Suveg, 2008; Khanna & Kendall, 2016; Walkup et al., 2008; Whiteside et al., 2016). Further, Cummings et al. (2013) demonstrated that it is not only CBT itself, but also the strength of the therapeutic alliance which then leads to more positive outcomes when using CBT to treat childhood anxiety.

Considering the recent study by Khanna and Kendall (2016), the researchers tackled several issues involved in the practice and application of CBT with a population of youth between the ages of 7 and 13 years. With previous research demonstrating the efficacy of CBT treatments for youth with anxiety disorders, Khanna and Kendall focused on the question of bringing CBT treatment to a community setting with limited mental health providers available. By using a computer-assisted CBT program, they were able to demonstrate a statistically significant positive impact, compared to a control group, immediately after the intervention ended, as well as three months later. Thus, not only demonstrating that the particular CBT intervention they used was effective for youth with anxiety disorders, but also Khanna and Kendall (2016) demonstrated that CBT could be delivered via a computer-assisted program, reducing overall costs and making the treatment more accessible to more communities.

Related to anxiety, the use of trauma-focused CBT treatment with victims of trauma has also been shown to yield positive results (e.g. Cohen, Mannarino, & Deblinger, 2012; Gil & Jalazo, 2009; Misurell et al., 2014). Although these studies have the common theme using trauma-focused CBT, they each take a very different approach. For example, the work of Misurell and his colleagues (Misurell et al., 2014) is centered on game-based CBT with youth between the ages of 4 to 17 years who have experienced child sexual abuse. By using an integrative approach to bridge evidenced-based structured play therapy with cognitive BT, they demonstrated how this intervention was able to improve treatment engagement and interest amongst the children and adolescent participants. Cohen et al. (2012) discusses trauma-focused CBT in a broader sense, synthesizing the research around the utility of songs, games and other creative activities to build receptivity toward the treatment prior to engaging in CBT in order to enhance treatment gains amongst youth. The integration of play therapy with trauma-focused CBT has also shown positive results (Gil & Jalazo, 2009).

Shirk et al. (2014) evaluated the effectiveness of a modified CBT approach with adolescents who had been exposed to a traumatic event and also presenting with depression. Noting previous research that indicated this particular population struggles to show much improvement with a variety of treatment approaches, they modified a CBT approach to focus on both cognitive deficits and distortions found among youth exposed to interpersonal trauma, resulting in a significant reduction in depressive features and high levels of satisfaction with the treatment. However, symptom reduction results were similar to those in the control group.

When adolescents struggle with insomnia, not only does it inhibit their ability to lead a productive life, but also interferes with critical learning that occurs in the teen years, including social skills and academics (Palermo et al., 2016). Insomnia and CBT has been studied and applied successfully for years with adult populations, but little research has been conducted on its effectiveness with adolescents. Recent research by Palermo et al. (2016) demonstrated the successful application of CBT with adolescents between the ages of 11 and 18 years suffering from insomnia in only four CBT treatment sessions.

Another study using a brief CBT approach to treatment, Bryan and colleagues (Bryan et al., 2012) described the process of treatment completion, i.e. termination of services, with a previously suicidal youth population. Specifically, they outline the various steps necessary for the client to complete within a brief CBT-focused treatment approach in order to reach the stage to begin termination of treatment, i.e. met success. This approach demonstrates the effectiveness of not only the use of a CBT approach in therapy with youth, but also for both the practitioner and client to reach an understanding when the treatment has been successful and it is time to terminate.

In addition to specific disorders, research has also demonstrated the use and effectiveness of CBT with children and adolescents from various populations. For example, several studies have shown positive results when using CBT with youth who have been diagnosed as high functioning along the autism spectrum disorder (ASD) and anxiety (e.g. Chalfant, Rapee, & Carroll, 2007; Reaven, Blakeley-Smith, Culhane-Shelburne, & Hepburn, 2012; Reaven et al., 2008; Sofronoff, Attwood, & Hinton, 2005; Wood et al., 2009). Post-treatment interviews have reported one-half to three-fourths to be free of previously noted anxiety disorder symptoms (Chalfant et al., 2007; Wood et al., 2009). Of more importance, it was noted in several studies that in addition to the reduction of anxiety symptoms, there were also decreases in general ASD problematic behaviors (Wood et al., 2009) and increases in positive skills like independence and daily living skills (Drahota, Wood, Sze, & Van Dyke, 2011).

When considering the use of CBT with international populations, van Steensel and Bögels (2015) demonstrated the effectiveness of CBT for anxiety disorders in youth, ages 11–18 years, with ASDs in the Netherlands. With over 200 participants in seven community-based clinics, the researchers found that a standard CBT protocol was as effective with their anxious ASD population as reported in other anxious-non-ASD populations. However, when comparing the treatment with an ASD population without an anxiety disorder, the treatment was seen to be mildly effective, impacting only a few of the targeted ASD behaviors the researchers hoped would improve. While in Switzerland, Schneider et al. (2013) compared the effectiveness of CBT interventions with Swiss children between the age of 8 and 13 years suffering from separation anxiety disorders. One of the CBT interventions included parents while the other did not have parental involvement. As would be expected, the engagement of parents led to better treatment results than the nonparental involved CBT treatment for these Swiss children.

A qualitative study completed in Tanzania and Kenya focused on learning how best to develop a culturally responsive, trauma-focused CBT treatment approach with youth (Woods-Jaeger et al. 2016). The authors systematically interviewed local community-based lay counselors who worked directly with children between the ages of 7 and 13 years in both countries, as part of two other larger studies. Their results indicated that when using a trauma-focused CBT approach in either of these countries, the provider should first understand the

cultural norms, then discuss with their guardians what has already been attempted and the level of success attained. Additionally, it was noted how critical it was for the agency to help take care of basic needs of the child and family throughout the CBT intervention.

In summary, CBT has repeatedly been demonstrated to be an effective treatment approach with youth, both children and adolescents, struggling with a variety of disorders and from across the world. However, as the research has demonstrated, youth provide unique challenges that must first be understood and then incorporated into any CBT treatment approach. Some of the challenges include developmental issues, both physical and mental, social context including school and home, as well as the family as a support system. It is imperative that prior to engaging in CBT treatment with youth, the provider should first understand the research and application of the CBT treatment based on the age, developmental levels, and other related factors of the youth being served.

Conclusion

The history of CBT has been marked by strong commitments to research on psychosocial processes, sound empirical evaluations, and theoretical development. Future directions for CBT involve its use and efficacy with specific populations, computerization and telehealth, as well as with additional and specific disorders such as insomnia and posttraumatic stress disorders (PTSD) in specific situations. The field of psychotherapy has evolved, establishing and maintaining an integrated, biopsychosocial perspective, and has demonstrated effective empirical procedures. CBT has played and will continue to play, a pivotal role in these accomplishments and developments.

See Also

Anxiety
Cognitive Behavioral and Cognitive–Self-report Assessment Techniques
Depression
Eating Disorders
Posttraumatic Stress Disorders
Trauma

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Social Anxiety and Social Anxiety Disorder

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Social anxiety disorder (SAD) is characterized by an excessive fear of negative evaluation invariably provoked by exposure to social or performance situations (American Psychiatric Association, 2013). Individuals with SAD are generally aware that their fears are disproportionate to any actual threat inherent in social settings, but still tend to avoid these situations or to endure them while experiencing high levels of distress (Weeks, Heimberg, Rodebaugh, & Norton, 2008). The disorder usually emerges during late adolescence or early adulthood and follows an unrelenting course if left untreated, additionally, it is among the most common psychiatric disorders in the United States, with a 12-month prevalence rate of 7.1% and a lifetime prevalence rate of 12.1% (Kessler, Petukhova, Sampson, Zaslavsky, & Wittchen, 2012). SAD can impose a substantial emotional and professional burden on its sufferers and should be targeted for treatment by the health-care systems (Katzelnick et al., 2001). For a clinical diagnosis of SAD, one must experience significant impairment resulting from avoidance of anxiety provoking social situations. Many individuals with SAD experience increased awareness of physical symptoms (e.g. blushing, sweating, fidgeting, etc.) and believe that those around them are aware of these symptoms as well (Anderson & Hope, 2009). In severe cases, people with SAD believe that they are the object of social attention and are being negatively judged by others.

Those afflicted with SAD frequently describe experiencing extreme shyness, anxiety regarding negative evaluations, school refusal, or some form of separation anxiety as children. In contrast to the other anxiety disorders, which are often predominantly found in women, the prevalence rates for SAD are roughly equivalent across the sexes. SAD is additionally associated with high rates of psychiatric comorbidity, with estimates as high as 83% in clinical samples (Goisman, Goldenberg, Vasile, & Keller, 1995). The most frequent comorbid diagnoses of SAD are MDD, GAD, and substance abuse. SAD is also an undertreated disorder, despite its severity.

Recent years have witnessed the emergence of several theoretical models of SAD. These models offer noticeably different conceptualizations of this syndrome, but share an emphasis

on the role of maladaptive cognitive and behavioral processes in the maintenance of the disorder (Hofmann, 2008). The most effective psychological interventions for SAD are cognitive behavioral therapies (CBT).

Two important commonalities of these approaches are the emphasis of maladaptive cognitive processes and negatively reinforced avoidance behaviors. It has been suggested that people with SAD may be apprehensive in social situations because of excessively high standards for social performance, overestimation of negative social costs, and the reinforcing deployment of safety behaviors. When confronted with perceived social threat, individuals with SAD typically create a mental representation of themselves and how others are perceiving them, leading to increased self-focused attention (Hofmann, 2008). This, in turn, has a number of consequences, as described below.

Negative Self-Perception

Contemporary treatment approaches target the consequences of excessively allocating attention to oneself during social encounters, resulting in an increased awareness of both one's anxious thoughts and internal sensations. Research suggests that in situations of heightened self-focused attention, people with SAD experience overly negative self-perceptions of their performance, which further confirms their beliefs that they are unable to convey the competent impression of themselves to others that they wish to convey (Bögels, 2006). Such perceptions tend to become reinforced through inaccurate information processing in social contexts, which can also inhibit subsequent behavioral performance.

Individuals with SAD also have attention biases toward socially threatening stimuli and away from more positive social cues. These attention biases can contribute to the impairing cycle of self-focused attention and negative performance. Furthermore, individuals with SAD tend to dismiss the value of their accomplishments when evaluating their behavior, even when they have performed adequately (Hofmann & Otto, 2008).

Social Standards

People with SAD typically presume that a very high level of performance is expected of everyone during social situations. This belief is usually accompanied by concerns about lacking the competence necessary to meet other's expectations, which compels socially anxious individuals to constantly compare their performance with these high standards (Hofmann, 2008). Many individuals with SAD express disappointment about being unable to live up to what they perceive as the high social standards of those around them. The greater the discrepancy between one's perception of one's performance and one's high expectations the more anxiety the individual will feel. Furthermore, even receiving positive input from the audience may cause a socially anxious individual distress, as it can trigger the belief that standards of performance have increased even further (Weeks et al., 2008). Interestingly, when it is clear to the individual that performance standards are low, no differences are found between participants with SAD and nonclinical controls, indicating that excessive negative self-appraisals become activated in people with SAD only during instances with demanding or uncertain performance expectations.

Social Deficits and Social Costs

Early theories postulated that social anxiety emerged as a consequence of social skills deficits, but empirical evidence provides little support for this assumption (Herbert, Gaudiano, Rheingold, Myers, Dalrymple, & Nolan, 2005). For decades, social skills training was a popular intervention for SAD, which did show some therapeutic efficacy (Wlazlo, Schroeder-Hartwig, Hand, Kaiser, & Münchau, 1990). In fact, more recent work has shown that upon successful treatment people with SAD do report improvements in both symptom severity and negative self-evaluations of their own performance during a social situation, but observers noticed no differences in actual social performance from others in a waitlist control. The clinically significant improvement seems to be more the result of altering perceptions, and currently many suggest that social skill training is more effective because of the exposure it requires (in practicing new skills) rather than the training itself (Herbert et al., 2005).

Overestimation of social costs, another key maintenance factor in SAD, reflects an exaggerated concern of assuming that social mishaps would lead to longer-term and irreversible negative consequences (Hofmann, 2008). Research has demonstrated that socially anxious individuals usually regard others as being critical and harsh in their social evaluations, believe that negative social outcomes will happen to them more than positive social outcomes, and rate all social mishaps as more costly. Additionally, several studies have suggested that change in estimated social cost during treatment is a mediator of the reduction in social anxiety symptoms.

Rumination and Post-Event Processing

People with SAD typically engage in rumination after encountering a social situation, which entails an exhaustive review of the social interaction in detail. Past experiences of anxiety and one's own negative self-perceptions frequently come to mind during this post-event processing, which undermines self-efficacy and exacerbates symptoms of overall social anxiety. It can also compel individuals to characterize a positive social interaction as increasingly negative during the course of the rumination (Hofmann & Otto, 2008). Participants reporting high levels of social anxiety exhibit greater levels of post-event rumination following a conversation with an unknown stranger than those who reported lower levels of social anxiety. Even weeks after a social speech task, participants with SAD will maintain increasingly negative self-appraisals of their performance, while non-clinical controls endorse positive self-appraisals of their performance which only improve over the course of the time period. Thus, it seems that post-event rumination may reinforce negative self-evaluations and maintain the vicious cycle.

Safety Behaviors and Avoidance

Social anxiety is often maintained because patients with SAD use avoidance strategies, prohibiting extinction learning. Some of these avoidance strategies involve the use of safety behaviors as a means of temporarily reducing emotional distress or concealing overt

displays of anxiety are a primary factor in the maintenance of SAD. The use of these avoidance behaviors (like avoiding eye contact, over preparing, fidgeting, etc.) prevents people from receiving any information that challenges their beliefs about the likely social costs of their behavior, and reinforces their belief that avoidance is necessary to prevent catastrophic outcomes. Individuals with SAD who are encouraged to undergo exposure while suppressing safety behaviors experience fewer negative self-appraisals and demonstrate greater accuracy in judgments of their own performance than those who undergo exposure alone (Hofmann, 2008).

Effective treatment for SAD targets all of the components presented above, including poor self-image, overestimation of the likelihood of a feared outcome, and the perceived social cost of a negative outcome (Hofmann & Otto, 2008). Psychoeducation prepares patients to actively engage in their treatment through coming face to face with their misconceptions about SAD and through explaining the rationale behind subsequent exposure exercises. Other strategies emphasize attentional modification to address the negative biases discussed above. Training people to redirect their attention to different stimuli while in an anxious situation and to become more present in the moment can help them to perform better and to gain a better understanding of their own anxiety. Another treatment element involves identifying and challenging maladaptive and inaccurate expectations about the likelihood and cost of negative evaluations. Helping people to understand the ways in which their assumptions are inaccurate and encouraging them to consider alternative beliefs is key to correcting the negative feedback loop that maintains SAD.

The most important element in the treatment of SAD, however, is exposing patients to their feared social or performance situations while discouraging safety behaviors. During an exposure, patients are encouraged not to engage in avoidance behaviors but rather to accept the present moment and thereby cope with their feelings of anxiety. Exposures provide an opportunity for individuals to learn that social situations are not inherently threatening. Exposures making use of video or audio feedback can also help to test patients' poor self-concept and their false beliefs concerning how they appear in social situations by comparing their predicted presentation to the actual presentation (Warnock-Parkes, Wild, Stott, Grey, Ehlers, & Clark, 2016). In vivo exposures, or exposures that involve patients directly confronting the feared situation in the real world (e.g. trying to make a return in store), allow patients to test their faulty assumptions about the likelihood and cost of a negative outcome in that social situation. Essentially, exposure serves both as a testing ground for the tools learned from psychoeducation, attention modification, and cognitive biases, as well as its more obvious role in exposing the patient to their fear and beginning to reduce the severity their anxiety.

Future Directions

Future research needs to target the various maintenance factors in SAD and to better understand how they interact in each individual in the maintenance of the disorder. It will be vital to determine for whom these interventions are most efficacious and to tailor our empirically supported treatments to maximize therapeutic benefit.

See Also

Anxiety
Anxiety, Assessment of
Shyness

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Personality and Depression

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Diagnostic Features

Depressive personality, also known as dysthymic disorder, features a chronic, low-level depression beginning in young adulthood or adolescence that does not occur exclusively during major depressive episodes. Negative thoughts and feelings include persistent feelings of dejection, gloominess, cheerlessness, and unhappiness. Such individuals feel as if they do not deserve fun or happiness. They may be overly serious, at times hostile, self-critical, neurotic, anxious, perfectionistic, lack a sense of humor, dwell on worries and concerns, and have difficulty relaxing. They view the future pessimistically, anticipate the worst, believe that things will not improve, and that they have no power to change their circumstances. They have low self-esteem, judge themselves harshly, and have strong feelings of inadequacy. Individuals with depressive personality often judge others by the same standard as they hold themselves and focus on others' failings rather than positive attributes. They may constantly pull for reassurance or validation, which, coupled with self-loathing, is often what eventually causes others to leave, which reinforces their negative view of the world and their ability to have positive relationships.

The *Diagnostic and Statistical Manual of Mental Orders, Fourth Edition* (DSM-IV-TR) (American Psychiatric Association, 2000) states that an individual must exhibit at least five of the following seven criteria for depressive personality disorder (DPD): (1) usual mood dominated by gloominess, sadness, or cheerlessness; (2) self-concept focuses on inadequacy, worthlessness, and low self-esteem; (3) is given to being critical, blaming, or judgmental toward self; (4) brooding and worries a lot; (5) is negativistic, critical, and judgmental toward others; (6) is pessimistic; and (7) prone to feelings of guilt and/or remorse. The second part of the criteria mandates that the above cognitions and behaviors do not exclusively occur during a major depressive episode or are not better accounted for by the criteria for dysthymic disorder (as stated in DSM-IV-TR). The DPD workgroup for DSM-V recommended that DPD be diagnosed by "core impairment in personality functioning and... pathological personality traits," specifically pessimism, anxiousness, depressivity, low self-esteem,

guilt/shame, and anhedonia. To ensure clarity, dysthymic disorder (renamed persistent depressive disorder in DSM-V) will be referenced as dysthymia for the remainder of this entry.

Within the depressive personality prototype are several variations of interpersonal patterns and internal dynamics observed during social engagement (Rasmussen, 2005). The *restive depressive* personality variation includes traits from the avoidant personality style. These individuals are distressed by their social isolation and blame themselves for the lack of meaningful relationships in their lives. They desire a partner, but feel unworthy of another's attentions or believe that they would ruin a relationship should they ever find one. This results in terminated relationships because of the depressing nature of the relationship. Such individuals may be prone to major depression, dysthymia, and anxiety. They are also more vulnerable to suicidal ideation, attempts, and execution, due to their belief that suicide will provide relief from their continued anguish.

The *self-derogatory depressive* personality style appears to combine the depressive and dependent personality styles. The defining emotion in this variation is guilt related to their inability to cultivate and sustain interpersonal relationships. These individuals tend to be highly self-critical and self-blaming. They want others to reassure and validate them; however, the reassurance often produces more self-loathing in effort to attain more validation, begetting a vicious cycle. Even though other people may see positive personality attributes, they ultimately leave as a consequence of the individual's constant need for reassurance. This results in reinforcing the individual's guilt and self-loathing.

The *ill-humored depressive* personality style incorporates features of the negativistic personality style. These individuals are cynical, bitter, self-pitying, foul-tempered, and irritable. They enjoy watching people fail. They also enjoy complaining and become defensive and argumentative if anyone responded or reframed their grievances optimistically. Compared to other depressive personality variants, people are most likely to avoid those of this style.

The *voguish depressive* personality style includes attributes from the histrionic and narcissistic personality styles. This depressive personality variant believes that unhappiness and negativity are a popular mode of social disengagement and social superiority. Depression is glorified and dignified; if one was not depressed, then one would be considered insensitive to the injustices of the world. Treatment may go one of two ways with this subtype: (1) some may enter therapy to validate their disillusionment of the world; and (2) others may feel it is a waste of time when the world is as badly off as it is. This population may also be at risk for substance abuse disorders due to participation in countercultural activities.

Finally, the *morbid depressive* personality style has masochistic personality traits. These individuals appear dejected, hopeless, self-abnegating, and pessimistic. They view themselves as helpless to improve their situation in life and do not believe other people can improve it either, thus leading to having little motivation to improve life circumstances and no excitement about the future. Such individuals often neglect themselves in key areas, including hygiene, appearance, employment, and nutrition. They may also struggle with episodes of major depression on top of their overall depressive presentation.

One of the concerns regarding depressive personality is its overlap with dysthymic disorder. For many years, it was commonly thought that depressive personality and dysthymia were one and the same. However, research has found that there are distinct differences between the two, the foremost being that dysthymia, along with major depressive disorder, are most often diagnosed by changes in somatic functioning and a persistent depressive

mood. A person with depressive personality may not report feeling continually depressed. Individuals with depressive disorder only, as compared to those diagnosed with dysthymia only, have significantly higher rates of specific phobias, social phobias, obsessive-compulsive disorder, and generalized anxiety disorder. Those with depressive personality are also twice as likely to be diagnosed with a personality disorder, particularly schizoid, avoidant, dependent, and obsessive-compulsive personality disorders. Additionally, they exhibit greater impaired global functioning, higher rates of suicidality, greater likelihood of past suicide attempts, and greater depressive symptomatology as compared to individuals with dysthymia only. Although depressive personality's comorbidity with both dysthymia and major depression ranges, the personality itself is not subsumed under either of the mood disorders and the rates of people with both depressive personality and dysthymia or major depressive disorder is no higher than the rates for people with other personality disorders and dysthymia or major depressive disorder.

Many orientations have studied the origins and presentation of long-term depression. Although they differ in terms of conceptualizing chronic depression as a standalone disorder or one end of a depressive spectrum, all have found elements of cognitive-interpersonal attributes, including being self-denigrating, melancholy, and sensitive to rejection. Psychoanalytic and psychodynamic theorists posited problems at the oral stage of psychosexual development or a poorly integrated ego. They also examined internalized aggression that turns into depression and regression to states of helplessness. Attachment theory speculated that vulnerability to threatened loss develops either through empathic breaches or misattuned responses between mother and infant. Self-psychology hypothesized that insufficient self-cohesion results in the individual feeling empty and devitalized (Silverstein, 2007). Other environmental factors include lack of familial or social support, loss of parental figures, and parental criticism (Huprich, 2012).

Prevalence

Depressive personality is the most commonly occurring personality prototype identified by practicing clinicians (Huprich, 2012; Klein & Shih, 1998). It has been observed and studied across several ethnic groups, including Caucasian, Asian American, and African American samples. The prevalence for depressive personality is as high as 22% in outpatient and inpatient populations and many clinicians noted difficulty differentiating low-level chronic depression from residual symptoms of a major depressive episode (Bagby, Watson, & Ryder, 2013; McDermut et al., 2003). Depressive personality occurs more often in women as compared to men.

Psychiatric History

Research has found that individuals with depressive personality have an increased current and lifetime risk for major depressive disorder, dysthymic disorder, specific phobias, social phobia, panic disorder with agoraphobia, posttraumatic stress disorder, generalized anxiety disorder, and eating disorders (Huprich, 2012; McDermut et al., 2003). However, they are less

likely to be diagnosed with adjustment disorders than individuals without depressive personality (McDermut et al., 2003). Individuals with depressive personality also demonstrate higher rates of all personality disorders except for antisocial personality disorder, particularly with avoidant, borderline, and obsessive-compulsive personality disorders (Huprich, 2012; Klein & Shih, 1998; McDermut et al., 2003). Other findings associated with depressive personality include higher levels of suicidality, higher level of comorbidity with both mental disorders and personality disorders (previously known as Axis I and II disorders), decreased social functioning, and increased unemployment rates (McDermut et al., 2003).

Familial/Biological Factors

First-degree relatives of people with depressive personality are more likely to have a history of any psychiatric disorder, specifically depression, bipolar disorder, alcohol abuse, and antisocial personality disorder (Huprich, 2012; McDermut et al., 2003). They also have higher rates of major depression and depressive personality as compared to first-degree relatives of individuals without depressive personality. First-degree relatives have a higher risk of developing psychiatric disorders, particularly bipolar disorder, depression, and antisocial personality disorder. There has also been a study that reported structural differences in the genu and posterior midbody of the corpus callosum of female patients diagnosed with depressive personality (Huprich, 2012).

Treatment Implications

Overall, depressive personality has been associated with a slower rate of recovery and lower rates of remission. It usually does not respond well to psychotropic medication, although it may alleviate depressive symptoms from a major depressive or dysthymic episode. Individuals with depressive personality also exhibit greater baseline severity pre-treatment and more depressive symptoms post-treatment as compared to individuals who do not have depressive personality.

Cognitive behavioral therapy (CBT) is an effective treatment for depressive disorders and has been found useful with those who have depressive personality. It can teach an individual how to examine pessimistic cognitions, examine developmental patterns that contribute to those cognitions, identify sources of pleasure and the potential for social enhancement, and undertake positive activities through behavioral activation. Psychodynamic therapy has also been found useful, particularly with prior research postulating that depressive personality may have roots in attachment disturbances. However, interpersonal therapy has significantly poorer remission rates as compared to other modalities (Maddux & Johansson, 2014).

Future Directions

Prospective research into depressive personality would benefit from several considerations. Continued research into the differences between dysthymia and depressive personality at the cognitive, biological, emotional, and developmental levels would clarify whether depressive personality is indeed on the low end of a depressive disorders spectrum or

whether it is a distinct personality type that is more vulnerable to major depression and dysthymia. Future research would benefit from twin and family studies to explore the potential biological marker in the genu and corpus callosum. Finally, research into therapeutic and psychopharmacologic interventions with individuals who have depressive personality would assist clinicians in developing appropriate treatment plans, allowing for increased improvement rates and less attrition from therapy.

See Also

Avoidant Personality Disorder
Depressive Personality (Dysthymic Disorder)
Emotion Regulation and Psychopathology
Narcissistic Personality Disorder

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Dissociative Disorders

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Dissociative disorders have sparked debate for more than a century. Nevertheless, researchers have made substantial strides in determining their nature and potential antecedents, and theorists have proposed promising but competing accounts of their etiology.

Dissociative Disorders and Dissociative Experiences

Dissociative disorders are marked by discontinuities in the "normal integration of consciousness, memory, identity, emotion, perception, body representation, motor control, and behavior" (American Psychiatric Association, 2013, p. 291). Yet people with a dissociative disorder often vary in more ways than they share a uniform symptom profile. Some experience radical alterations in their sense of self and their surroundings, others experience difficulties in their recall of events, and still others experience profound alterations in their sense of identity and abrupt changes in emotions.

The DSM-V provides the following guidelines for diagnosing the three major dissociative disorders:

1. *Dissociative amnesia* is diagnosed in the presence of an inability to recall important autobiographical information, typically of a traumatic or stressful nature, that is inconsistent with ordinary forgetting. This disorder typically "consists of localized or selective amnesia for a specific event or events, or generalized amnesia for identity and life history" (American Psychiatric Association, 2013, p. 298).
2. *Depersonalization/derealization disorder*, formerly known as depersonalization disorder, is diagnosed based on persistent depersonalization, derealization, or both. Depersonalization symptoms include (1) experiences of unreality; (2) feelings of detachment or being an outside observer of one's thoughts, feelings, sensations, or actions; (3) an unreal or absent sense of self; (4) intense physical and emotional numbing; and

(5) marked time distortion. Derealization involves feelings of unreality or detachment with respect to one's surroundings that include the experience of individuals or objects as unreal, dreamlike, foggy, visually distorted, or lifeless.

3. *Dissociative identity disorder,* formerly known as multiple personality disorder, is diagnosed when evidence exists of a striking disruption of identity distinguished by two or more separate personality states and recurrent gaps in the recall of everyday events, personal information, and/or traumatic events that are inconsistent with ordinary forgetting (American Psychiatric Association, 2013, p. 292).

To merit a diagnosis, dissociative disorders must (a) interfere with important areas of daily functioning (e.g. academic, interpersonal, occupational); (b) elicit subjective distress; and (c) not be the product of a substance or another medical condition.

Prevalence of Dissociative Disorders

Estimates of dissociative disorder lifetime prevalence vary widely and range from 0.3% in the general population to as high as 18.3% for lifetime dissociative disorder diagnoses in a Turkish female sample (Lynn et al., 2014). Rates of dissociative disorders tend to be much higher in clinical populations, but variability is still the norm, with rates ranging from 12–17% to 28–40.9% lifetime prevalence in inpatient settings to as high as 34.9% in a psychiatric emergency facility (see Lynn et al., 2014). Some studies report a greater prevalence in females; others report no differences. Potential reasons for the disparities in rates include differences in assessment instruments, base rates at different facilities, referral and selection biases (females with dissociative disorders may more often end up in psychiatric settings; males may more often end up in forensic settings), and co-occurring symptoms and potential examiner bias (Lilienfeld & Lynn, 2015).

Dissociative Amnesia

DA is highly controversial: Where, if anywhere, to draw the line between "ordinary forgetting" and more extensive memory deficits is not clear. Although the diagnosis precludes cases of memory loss attributable to a substance or a neurological condition (e.g. traumatic brain injury, seizures), it is often impossible to rule out such antecedents. Additionally, reports of extensive forgetting could be attributable to malingering, or to reluctance or unwillingness to think about or report distressing or embarrassing events. Although DA is said to often occur in response to a traumatic event, the experience of trauma typically produces *opposite* effects on memory: traumatic memories are generally salient, highly memorable, and not readily forgotten. Such concerns have prompted questions regarding the existence of DA as a valid diagnostic entity.

Prevalence, co-morbidity, *and presentation*. Estimates of the prevalence of the diagnosis vary widely among the general population across cultures: 0.2% in China, 0.9% and 7.3% in Turkey, and 3.0% in Canada (Dell, 2009). In addition to differences in diagnostic thresholds, variability may reflect actual cultural differences in the disorder.

The presentation of DA is also highly variable. Episodes can vary from minutes to many years; they can be an isolated event or recur. DA is most likely to occur between the ages of 30 and 40, last between one and five days, and emerge equally among both sexes (American Psychiatric Association, 2013).

Depersonalization/Derealization Disorder

Depersonalization/Derealization Disorder (DDD) is the most common and least controversial of the dissociative disorders. In DDD, reality testing remains intact and individuals know they are not experiencing a true break with reality (American Psychiatric Association, 2013, p. 302). Depersonalization and derealization can evoke distress, even to the point of fear of dying, or, rarely, developing psychotic symptoms.

Diagnostic considerations. Single episodes of DDD are common; as many as half of adults report at least one such episode in their lifetimes (Aderibigbe, Bloch, & Walker, 2001). Accordingly, DDD is diagnosed when symptoms are persistent, occur at least once a month, are disturbing and/or interfere with daily functions, and cannot be better accounted for by another disorder. The onset of DDD can be can gradual or abrupt; the disorder can be chronic or episodic and vary from hours to years, and even, in extreme cases, persist for decades. Episodes can be triggered by intense stress and are anxiety-eliciting social interactions; panic attacks; posttraumatic stress disorder; hallucinogenic drug intake, depression; and a history of abuse, parent rejection, and punishment (see Lynn et al., 2016).

Prevalence and co-morbidity. The annual prevalence of a single episode of DDD is estimated to be 23% (Aderibigbe, Bloch, & Walker, 2001), with a lifetime prevalence between 26% and 74%. Lifetime prevalence of DDD is estimated at 2% with a range of 0.8% to 2.8% (American Psychiatric Association, 2013; Lynn et al., 2016). DDD diagnosis rates are approximately equal in females and males). The rate of DDD ranges as high as 16% in inpatient samples (Hunter, Sierra, & David 2004). DDD frequently occurs in the presence of anxiety disorders, particularly panic disorder; major depression; personality disorders (e.g. avoidant, borderline, obsessive-compulsive); somatoform disorders; substance use disorders; and acute stress disorder (see Lynn et al., 2016).

Dissociative Identity Disorder

DSM-V defines DID as "the presence of two or more distinct personality states or experiences of possession" (American Psychiatric Association, 2013, p. 292). The terms "identities" and "personalities" are used herein because they encompass "personality states" and are widely represented in the DID literature (see also Lynn et al., 2014). A diagnosis is possible when personality changes are "observed by others" or "reported by the individual" (American Psychiatric Association, 2013, p. 292) and when "sudden alterations or discontinuities in sense of self or agency and recurrent dissociative amnesias" are manifested (American Psychiatric Association, 2013, p. 293). A diagnosis is appropriate when the identity disruption is not a typical or acceptable part of a person's culture or religion.

DID symptoms are highly variable across individuals; they can be episodic or continuous, and DSM-V specifies numerous indicators of personality shifts, such as changes in

attitudes, food preferences, perception one's body is of the opposite gender, and perceptions of internal voices. Identities can purportedly range from 2 to more than 100, although rare cases have reportedly involved up to 4,500 alters, a number that strikes many critics of the diagnosis as implausible.

Prevalence and co-morbidity. General population prevalence rates for DID in Turkey, Canada, and North America are all estimated to be approximately 1%, with similar rates for men and women (Lynn et al., 2016; American Psychiatric Association, 2013). In clinical samples, prevalence rates typically exceed 10% (see Lynn et al., 2016). Females are three to nine times more likely to be diagnosed with DID in clinical settings; however, selection and referral biases may account for gender disparity.

DID is a transdiagnostic set of signs and symptoms that may reflect severe psychopathology, negative emotionality, or both. Ellason, Ross, and Fuchs (1996) reported that individuals diagnosed with DID also met criteria for 8 Axis I (major) disorders and 4.5 Axis II (personality) disorders, on average. Individuals with DID often report severe symptoms, including self-mutilation, suicidal or aggressive behavior, and sexual and eating dysfunctions. DID and dissociative symptoms more generally also co-occur with schizoaffective disorder, bipolar disorder, borderline and other personality disorders (e.g. schizotypal, avoidant, histrionic), anxiety disorders, obsessive-compulsive disorder, substance use disorders, depression, and posttraumatic stress disorder (see Lynn et al., 2014).

Theories of Dissociation

The trauma model of dissociation. The trauma model (TM) and the sociocognitive model (SM) have dominated contemporary accounts of dissociation and dissociative disorders. The TM argues that dissociation, particularly severe dissociation that marks DID, can be traced to a childhood history of severe physical or sexual abuse, or severe stressors later in life. Proponents of this view contend that dissociation serves a defensive function, with alter personalities arising to wall off memories and the emotional residues of abuse to cope with the psychic pain of the trauma (see Dalenberg et al., 2012; Gleaves, 1996). Different personality parts/alters thus ostensibly come about to manage different aspects of the trauma. For example, from this perspective, an angry or a protector alter might emerge when incipient memories or emotions associated with the original traumatic event are triggered.

TM theory is supported by apparently high rates of trauma, sometimes in excess of 90%, in association with DID (Dalenberg et al., 2012). Nevertheless, critics of the TM (e.g. Giesbrecht et al., 2008) have observed that the correlation between a history of abuse and dissociation is highly variable across clinical and nonclinical samples, ranging from $r = -.14$ to $r = .63$ (Dalenberg et al., 2012). Moreover, corroboration of abuse is often lacking, most studies rely exclusively on self-reported trauma, and studies that follow participants over time often fail to find a significant correlation between early abuse and adult dissociation. Furthermore, dissociative symptoms are present in many disorders, and a history of child abuse is frequently reported in the context of many disorders, rendering the specificity of the link between dissociation and child abuse suspect.

Contrary to the view that trauma is central to dissociation, the SCM holds that social, cultural, and cognitive variables combine to foster a credible personal narrative of multiple selves. These variables include (a) widely held cultural beliefs about the link between abuse

and dissociation, often propagated by media accounts in books, movies (e.g. *Sybil*, *The Three Faces of Eve*, *Split*), and television programs (e.g. *United States of Tara*); (b) inappropriately suggestive techniques in psychotherapy (e.g. hypnosis to recover memories, calling alters by names, pressing for recall of abuse after denials of abuse) to unearth supposedly dissociated or repressed memories of abuse and that imply that puzzling and/or rapidly shifting thoughts, emotions, and behaviors are the products of multiple indwelling entities; (c) fantasy-proneness, which may engender inaccurate reports of childhood trauma; and (d) high suggestibility, which increases vulnerability to false memories. Consistent with the SCM, laboratory evidence (e.g. event-related potentials, behavioral tasks) does not support the notion that DID is characterized by independent personalities separated by unbreachable amnesic barriers (Huntjens, Verschuere, & McNally, 2012).

The SCM, like the TM, has not escaped criticism. Adherents of the TM have argued that suggestion, suggestibility, and fantasy-proneness are not sufficient to provide a comprehensive account of dissociation, as none of the correlations of these variables with dissociation exceeds $r = .40$ by much on a consistent basis. Nevertheless, it is unclear whether this rebuttal is compelling given that the SCM views these individual differences as vulnerability, not as determinative, factors.

Researchers and theorists have identified other variables that could contribute to understanding dissociation. For example, sleep disturbances may promote entry of dreamlike cognition into waking life that engenders feelings of depersonalization/derealization. Depriving participants of sleep increases dissociative symptoms, whereas sleep hygiene to promote undisturbed sleep decreases dissociative symptoms (see Van der Kloet et al., 2012), implying a potential causal relation between sleep and dissociation. Moreover, high scorers on dissociation exhibit (a) failures in self-regulation and executive control, alongside a tendency to hyperassociate and shift mental sets in the face of arousing or negative stimuli; and (b) difficulties in monitoring, identifying, and elaborating their thoughts, feelings, and action tendencies, all of which promote failures in integration of diverse elements of experience (Lynn et al., 2016).

Finally, researchers have identified genetic and other potential biological pathways to dissociation. Inconsistent yet generally positive evidence exists for a genetic substrate of dissociation, with between 48% and 59% of variability in measures of dissociation attributable to genetic influences (see Lynn et al., 2016). Moreover, an altered sense of reality and the self in DDD are associated with a mismatch between (or a failure to integrate) multisensory inputs (e.g. visual, proprioceptive, vestibular) and that DDD occurs in conjunction with activation of the right dorsolateral prefrontal cortex while the anterior cingulate is inhibited reciprocally (Lynn et al., 2016). Other neurobiological models of dissociation consider the impact of default mode mediation of self-referential processing, overmodulation and undermodulation of affective states, inter-hemispheric communication, and neural networks.

Conclusions

Competing theories of dissociation and dissociative disorders have been advanced to account for individual differences in dissociation. Multifactorial perspectives, which consider early trauma, sociocognitive, neurobiological, and genetic variables, will be necessary to provide a comprehensive etiological narrative of the expression of dissociation in its myriad manifestations.

See Also

Neuropsychiatric Disorders
Posttraumatic Stress Disorders

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Autism Spectrum Disorder

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Features and Diagnosis

Autism spectrum disorder (ASD) is defined in the current Diagnostic and Statistical Manual of Mental Disorders of the American Psychiatric Association (DSM-5; American Psychiatric Association, 2013) primarily by deficits in two domains: social interaction and communication, and patterns of preferred activities, behaviors, and interests. These include difficulties in conducting regular conversation between peers, understanding and using nonverbal communication, and in developing relationships. Individuals with ASD also tend to show unusual sensitivity to changes in their regular, preferred social or material environments and routines, as well as idiosyncratically fixated interests or attachment to specific objects. These impairments typically are evident and stable from early in life, but vary widely in focus and severity across individuals. The early emergence of most common manifestations of ASD point to basic neurobiological variations of likely genetic origin; however, the variety of behavioral features, and their typical influences on achieving common developmental milestones, has led researchers and practitioners to conceptualize traits of autism along a spectrum.

Swiss psychiatrist Eugen Bleuler first used the term *autism* in the early twentieth century to describe symptoms of extreme self-focus that he and his predecessors had observed among children with bizarre behavior, which he and others likened to schizophrenia. Austrian pediatrician Hans Asperger, and Austrian immigrant to the United States psychiatrist Leo Kanner, are credited with using the term beginning in the 1940s to describe childhood cases of impaired social interaction, idiosyncratic behavior, and restricted communication as a clinically distinct pattern (Volkmar & McPartland, 2014). Systematic observations and descriptions by Mark Rutter and by Lorna Wing promoted formal diagnostic classification of significant patterns associated with autism in the United States. Through 2000, autism was presented as one among several "pervasive developmental disorders" (PDDs), alongside Asperger's disorder, childhood disintegrative disorder, and "pervasive developmental disorder not otherwise specified." Beyond heterogeneity in the

behavioral manifestations and their severity among individuals specifically with "autistic disorder," overlap among the four supposedly distinct PDD categories, as well as clinicians' inconsistency in applying subtle differential diagnostic criteria, reinforced the practicality of a spectrum approach to the disorder. Ultimately, these challenges led to combining these diverse patterns into the one comprehensive diagnosis of ASDs, in the current (2013) edition of the DSM.

Prevalence and Incidence

ASD affects approximately 1 in 59 children in the United States, nearly five times more prevalent among boys than girls. Prevalence estimates have increased dramatically in recent years, up from only 1 in 150 as late as 2000. No comprehensive, direct explanations for these increases have been identified, although multiple likely contributors include growing public and professional awareness of ASD and its symptoms, and greater availability of assessment and treatment services. While the possibility of *actual* increases in ASD incidence remains under investigation, systematic research has ruled out some postnatal environmental factors suspected as causal, such as childhood immunizations. Epidemiological research suggests lower but similar prevalence rates outside of the United States and Europe; however, limited research, with open questions of cross-cultural validity, present ongoing challenges to generalizing findings beyond these regions.

Related Personality Characteristics

Consistent with the spectrum approach, research has identified milder but consistent trait-like patterns characteristic of autism in wider, nonclinical populations. These patterns, originally studied in families and siblings of individuals with autism, have been labeled the *broader autism phenotype* (BAP). The BAP describes marked tendencies toward atypically low levels of social interest and enjoyment, difficulties adapting to altered routines, and associated dysfluencies in language and social skills. Individuals with characteristics of the BAP do not necessarily meet criteria for a clinical ASD diagnosis; however, the BAP has been shown relevant to personal and interpersonal adjustment, associated with factors such as limited social-cognitive abilities, loneliness, and unsatisfying friendship quality and duration. The continuum of characteristics from BAP through fully diagnosable ASDs thus appear to influence an associated range of mental health outcomes.

Descriptive approaches to autism spectrum disorders and the BAP suggest common patterns of psychological characteristics that differ chiefly in severity. Contemporary dimensional approaches to normal personality and its disorders have been invoked to characterize these patterns empirically. Research using the Five Factor Model (FFM) conceptualization of personality has suggested that adults on the autism spectrum show lower characteristic extraversion (sociability and tendency to seek stimulation through interaction with others), and openness to new experiences, as well as stronger tendencies toward neuroticism

(negative affectivity), compulsiveness, and inhibition (Schwartzman, Wood, & Kapp, 2015). Similarly, studies of the BAP among parents and relatives of children with autism suggest that the FFM dimensions and facets can characterize their low extraversion and social disengagement. Besides these, the social and interpersonal components of the BAP also correlate with Neuroticism, particularly regarding proneness to experience emotional vulnerability and anxiety, which in turn are associated with adverse reactions to stress and lower well-being. Furthermore, recognized facets of the FFM factors have been used to characterize subtypes of adult ASD patterns, explaining even more variance in symptomatology. These associations underscore both the role of the BAP within the larger spectrum of autism-related characteristics and the utility of models of basic personality to characterize the continuum of key traits and behaviors across general and clinical populations.

Cultural and Demographic Matters

The epidemiology of autism has been investigated most extensively in Euro American populations, such as within the United States, while limited evidence of cross-cultural instrument validity and inconsistent methods constrain firm conclusions about global prevalence, incidence, and risk. Still, populations around the world have recognized ASD as a legitimate condition, and increasing awareness has prompted more epidemiological investigations to illuminate how socio-cultural factors may influence assessment, diagnosis, and interventions for ASD. Key diagnostic features of ASD potentially influenced by socio-cultural norms include expected reciprocity in social interactions, affective experience and expression customs, normative levels of eye contact, and cognitive rigidity. These also may include expected behavior by gender, which may contribute to the imbalanced sex ratio in diagnosis. Group-specific modifications of diagnostic and treatment techniques have sought to increase sensitivity to these nuances. Other considerations have involved attention to the cultural contexts of treatment, including how families and communities understand ASD as a disorder, and their decisions to pursue diagnosis and treatment. Culture and ethnic background also influence awareness and access to ASD-related information and resources, traditions and practices for helpseeking, and stigma associated with ASD-related characteristics.

Research on culturally appropriate assessment of ASD has focused mainly on linguistic adaptations of ASD measures for different countries. The Social Responsiveness Scale (SRS), Autism Spectrum Quotient (AQ), and the Modified Checklist for Autism in Toddlers (M-CHAT) are among the instruments that have been adapted for specific contexts, including China and Turkey. Modifications of these measures have included wording changes to reflect cultural nuances in describing ASD symptoms, colloquial expressions, as well as relevant religious or other community-based values. While linguistic translation is the most basic level of adapting measures for cross-cultural use, growing demand to evaluate autism across cultural contexts is encouraging more sophisticated investigation of conceptual equivalence and validity of assessment methods. Effective cultural adaptations, in turn, likely will influence conceptualizations of ASD symptoms and refine understanding of underlying etiology.

Theories and Controversies

Early-twentieth-century theorists considered autism as a form of childhood schizophrenia. Influenced by psychoanalytic paradigms, early etiological theories considered characteristics such as idiosyncratic inward focus and odd responses to the environment as emblematic of profoundly emotionally distant parenting. These views became increasing unlikely, however, with mounting evidence of the early appearance – diagnosable in some cases as early as 14 months of age – of symptoms, and absence of relationship with actual observed parenting patterns. While Kanner's seminal work in the 1940s did conclude that a pathogenic lack of parental warmth contributed to the development of autism, consistent with psychoanalytic theories of the time, he nonetheless framed the disorder as an outcome mainly among biologically sensitive children. By the middle of the twentieth century, mainstream psychiatric approaches emphasized Kanner's conceptualization of the likely biological roots of autism.

In the 1970s, child psychiatrist and temperament researcher Stella Chess described rubella as a significant potential neurological risk for autism, pioneering current research emphases on specific neurodevelopmental mechanisms. Careful observational approaches also helped rule out speculation that childhood immunization and other toxicological factors cause ASD. Current etiological theories focus on atypical development of key neurological pathways, as well as other genetic vulnerabilities potentiated by prenatal and perinatal risks.

Family studies point to genetic contributions. Monozygotic twins show significantly higher concordance rates of autism spectrum disorders than dizygotic twins or singleton siblings; however, other factors must be operative since these concordance rates tend to be far less than 100%. Furthermore, an array of genetic syndromes has been linked empirically to autism spectrum disorders in varying degrees; Fragile X syndrome is a notable example. Each genetic variation may influence specific mechanisms related to behavioral manifestations of ASD, from sensory processing and receptive or expressive communication capabilities, to emotion recognition and reward processing. Early disruptions in any of these neurobiological systems also may exert indirect influence by interrupting critical early environmental experiences that lay foundations for later typical interpersonal learning and development.

The heterogeneity of symptom presentation in ASD has reinforced the importance of descriptive precision and personality research – including the BAP – to help explore and categorize causal pathways. While ASD diagnostic tools tend to be more precise among infants and children, personality approaches to ASD offer meaningful coherence regarding behavior patterns observed among adults, as well as clues about common underlying biological substrates. These behavior patterns can be considered phenotypes reflecting underlying relatively stable traits. To the extent that adults' psychological characteristics also have their origin in biologically determined response tendencies, studies investigating basic temperament – as precursors and building blocks of basic personality – have suggested some patterns among infants at risk. Approaches to temperament also lend themselves to dimensional characterization, yielding patterns like those seen in personality research. Caregiver reports and experimental observations have shown that infants and children on the autism spectrum have difficulties regulating their responses to the environment. These include being harder to soothe (suggestive of the negative affectivity facets of

neuroticism), characteristic problems controlling attention (suggestive of facets of conscientiousness observed among adolescent and adult personalities) and notably lower sociability and social interaction initiation (as suggested by lower facet scores of openness, extraversion, and agreeableness evident in adult self-reports). Importantly, these patterns also distinguish infants on the autism spectrum from those with other neurodevelopmental disorders, such as Down syndrome.

The wide range of ASD symptom presentations (such as restricted communication capabilities) and comorbid conditions (including intellectual disability) also confound assessment methods and differential diagnosis. Self-report methods, including reliance on retrospective caregiver reports of infant behavior, complicate the persistent problems of ASD diagnosis. Conceptually, overlap between ASD and temperament/personality may grow out of common roots, simply represent similar biological mechanisms, or reflect different phenomena mediated by shared third variables, such as culture-specific conceptualizations or even artifacts of the models and measures of personality invoked.

Interventions

Consistent with findings linking early temperament and its progression into adult personality traits, early interventions have strong associations with increased positive outcomes for adults with ASD. Empirically supported interventions for ASD tend to focus on learning skills to target specific dysfunctional behavior patterns that may undermine adjustment in school, employment, or meaningful relationships (Bishop-Fitzpatrick, Minshew, & Eack, 2013). Among the most successful and comprehensive systems is applied behavior analysis, which employs basic conditioning principles selectively and intensively to prompt, reinforce, and practice targeted desirable behaviors (such as socially appropriate eye contact, and functional communication skills), and extinguish undesirable ones (such as stereotyped self-stimulation or verbal perseveration). Other intervention approaches also feature learning and reinforcement techniques to help individuals with ASD acquire appropriate and useful behavioral repertoires, particularly as facilitated individually or in small groups. Effective interventions with adults, particularly those considered "higher functioning" with respect to their ASD symptoms, also have included computer-based social cognition training aimed at helping them better understand social cues, and therefore respond more effectively (Wong et al., 2015). Systematic reviews of outcome evidence suggest that children and adults treated in these ways tend to demonstrate and maintain functional gains.

No pharmacological interventions treat ASD directly, but often are used in individual cases to target comorbid symptom patterns, such as attentional or anxiety disorder problems.

See Also

Abilities, General Features and Methodological Issues
Biological Models of Personality – Neurological
Gene-Environment Interaction

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Addictive Personality and Substance Abuse Disorders (SUD)

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Substance Use Disorders and Behavioral Addiction in the DSM-V

Addiction in general describes patterns of maladaptive behavior associated with short-term reward, as well as adverse consequences related to excessive use and poor control over these behaviors. The American Psychiatric Association's *Diagnostic and Statistical Manual of Mental Disorders, Fifth Edition* (DSM-5) classifies these forms of psychopathology together in the category "Substance-related and Addictive Disorders," based on key similarities in etiology and behavioral symptoms across substance use and gambling disorders. *Substance-related disorders* are broken down according to impaired control over the use of 10 classes of drugs: alcohol, opioids, stimulants, sedatives, hypnotics, anxiolytics, hallucinogens, cannabis, inhalants, and caffeine. *Gambling disorder* is the only formal classification of behavioral addiction in the DSM-V, although emerging research points to the potential to add other maladaptive behaviors including gaming, internet use, and social network disorders, and sex and exercise addictions.

Other studies point to the addictive nature of eating pathology, including restriction, overeating, and compensatory behaviors against weight change. Research has suggested shared components across these diverse forms of addictive behaviors: dominance of the behavior across life domains, affect-modifying effects of engaging in these patterns, tolerance, withdrawal symptoms, relapse patterns, and tendencies to cause intrapsychic and interpersonal conflicts.

The conceptualization and classification of substance-related and behavioral addictions have moved from a binary diagnostic decision to a continuum describing psychological dysfunctions in the DSM-5. Not only does a continuum perspective help contextualize the high rates of comorbidity among behavioral addictions and substance use disorders, these changes also reflect ample scientific knowledge suggesting common underlying etiologic

and prognostic factors, including genetic predisposition, dysregulation in the brain reward system, and personality vulnerabilities.

Addictive Personality

In the early twentieth century, mental health professionals began to invoke personality as an explanation for maladaptive substance use patterns. These professionals were trained primarily in psychoanalytic orientations. Hungarian-born psychiatrist Sandor Radó is perhaps most closely associated with articulating the original framework of addictive personality. Radó conceptualized substance addiction as the result of a regularized pattern of responses to intrapsychic forces generating the impulse to use drugs. He criticized mainstream psychiatry of the time for misattributing the social problems and distress associated with substance abuse to the toxic effects of the drugs themselves. He argued that the causes, common patterns of maladaptive behavior, and pathways for intervention lay in understanding the shared deep structure of psychological characteristics leading to substance use, rather than substance use leading to intrapsychic problems. Building on Sigmund Freud's psychoanalytic formulation of dysfunctional behavior, Radó argued that the search to recreate "primitive," all-encompassing sensual gratification of infancy leads individuals into cycles of self-focused pleasure seeking that come to surpass other more "mature" – and less socially and self-destructive – satisfactions. Reflecting the primitive character of these urges, persons with addictions often use similarly primitive defense mechanisms, such as denial and deception, when confronted by others about their dysfunction. Addiction therefore could be considered a psychological problem because cravings for the drug of choice represent desperate attempts to cope with an environment that does not offer lasting relief for the psychological suffering that these individuals experience. Drug seeking becomes part of a characteristic cycle of attempts to recreate the inevitably short-lived pleasurable experience, as well as to avoid the loss of self-regard from failing to use more socially acceptable coping.

This psychodynamic conceptualization of addictive personality thus characterizes it as a narcissistic (extremely self-focused, marked by high levels of disagreeableness) or antisocial (including rebelliousness, lack of social responsibility, and impairment in judgment) disorder. Although psychoactive effects of substances differ, all forms of substance misuse serve the primary, infantile search to generate pleasure, and minimize or avoid suffering. As a dominant influence on the organization of the first DSM and subsequent DSM-II, attention to such psychodynamic mechanisms led to classifying alcohol and other substance use disorders under the category of "Personality Disorders and Certain Other Non-Psychotic Mental Disorders." Psychodynamic theory supporting the first two DSM editions highlighted observations that antisocial and narcissistic personality characteristics are particularly reliable in differentiating those with and without "alcoholism" or other "drug addiction."

Whereas attributing all forms of addiction to a single personality pattern has faded in popularity in light of growing evidence for alternative explanations that are based on a mix of characterologic factors, the exploration of the addictive personality was important for advancing the notion that stable characteristics, experiences, and coping contribute to substance and behavioral addictions.

Personality Vulnerabilities Across Substance Use Disorders, Behavioral Addiction, and Eating Disorders

Cross-sectional patterns and systematic studies of personality characteristics provide a solid evidence base for understanding their roles in addictive disorders. Longitudinal studies have shown that parents with a lifetime diagnosis of substance use disorders are at greater risk for having offspring with temperament disturbances during infancy. Infants' "difficult temperament" is associated with lower levels of easiness and thresholds for arousal, greater distractibility, irregularity of daily routines, and negative reactions to novel experiences in childhood. These characteristics suggest an etiologic factor underlying the substance use diagnoses in the DSM (see Kotov, Gamez, Schmidt, & Watson, 2010). The fact that substance use among parents and early childhood characteristics can predict individuals' substance use disorder diagnoses in adulthood provides robust evidence of shared biological predispositions across personality traits and addictive behaviors.

Impulsivity

Impulsivity is among the most studied predictors of substance misuse. Greater impulsivity is associated with earlier onset of addiction and more severe adverse consequences (Sharma, Markon, & Clark, 2014). Family-tree interviews and behavior genetic studies have indicated that the density of relatives with substance use disorders is higher among drug users with high level of impulsivity. Furthermore, less impulse control – associated with earlier onset of puberty – has shown to predict greater frequency and quantity of substance use among adolescents. Among individuals with cocaine use disorders, gambling disorder, and food addiction, those with higher levels of trait impulsivity and poorer executive functioning tend to report poorer psychosocial functioning and quality of life, and show worse clinical outcomes than those with lower levels of impulsivity.

Traditionally, impulsivity referred to behaviors performed with little or inadequate premeditation. More recently, impulsivity has been conceptualized in terms of four trait components: sensation seeking (negative and positive), urgency, disinhibition, and lack of perseverance. Sensation seeking reflects extraversion and positive affectivity. Urgency is the tendency to act in an intense emotional state. Disinhibition points to low level of deliberation and cautiousness. Lack of perseverance indicates resourcelessness and poor self-discipline.

Among the four impulsivity components, negative urgency (i.e. the tendency to act rashly while in a distressed state) plays a central role in alcohol, drug, and cigarette use, and gambling behavior, whereas disinhibitory tendency is shown to be the second most robust contributor. By comparison, sensation seeking and lack of perseverance are less predictive of substance and behavioral addictions. Furthermore, negative and positive urgency, as well as lack of perseverance, not only are associated with greater food addiction but also in turn predict higher body mass index. Other studies have indicated that self-reported tendency to use addictive behavior to alleviate negative emotions further amplify the impact of urgency-related impulsivity, which then is predictive of bulimia nervosa diagnosis.

Novelty, Sensation, and Excitement Seeking

Novelty seeking and sensation seeking reflect a similar underlying individual trait that is assessed by different instruments. Both denote the tendency to pursue intense excitement in the presence of novel stimuli that elicit reward or relief from aversion. Excitement seeking in the Big Five nomological network is indicative of extraversion and positive affectivity. Broader measurements of this construct have shown a positive correlation with extraversion and a negative correlation with conscientiousness. In general, sensation seeking has been found to be the lowest among non-substance users, and higher among alcohol users, cannabis users, and illicit drug users, in increasing order. Sensation seeking partially mediates the relations between early puberty status and adolescent substance use, even when impulse control is controlled.

Big Five Personality Traits

The Big Five nomological network of basic personality traits has contributed to a considerable body of research on addiction tendencies. Neuroticism is characterized by emotional (in)stability and tendency to experience negative affect and experiences. Extraversion refers to the breadth of positive affect and affinity to energy from external sources. Openness indicates an interest and appreciation for diverse experiences and ideas. Agreeableness reflects general concern for others and interpersonal harmony. Conscientiousness is characterized by organization, planfulness, self-discipline, and diligence. The five-factor structure has been helpful in organizing broadband personality traits and describing their impact on addictive behaviors. Among the five personality domains, high levels of extraversion and neuroticism, and low level of conscientiousness/constraint have been shown to predict more addictive behaviors.

When considering the Big Five personality traits simultaneously, high levels of extraversion coupled with low levels of conscientiousness are linked to increasing levels of alcohol consumption over time. Greater neuroticism and agreeableness, and lower levels of openness to novel experiences collectively are predictive of decrease in drinking over time from moderate levels to abstinence.

Extraversion, moderated by high level of expectancies to be social, is predictive of increased alcohol use among college students. High degree of extraversion is associated with greater social networking addiction (e.g. use of social media tools such as Facebook and LinkedIn) but not with general internet-use addiction, whereas low levels of extraversion are predictive of anorexia nervosa symptoms. Extraversion is associated with heavy alcohol consumption and lower likelihood to be abstinent in both cross-sectional and prospective studies. Its relation with addictive behaviors evidently is driven by high levels of sensation seeking and sociability, and social-oriented drinking motives. Neurotic features not only are linked to greater consumption of substances, and internet and social networking addictions, but also predict anorexia nervosa and bulimia nervosa symptomatology. Low levels of conscientiousness are associated with heavy drinking in cross-sectional data, and an increase from moderate to heavy drinking in longitudinal studies.

Variability of Personality Risks Across Addiction Subtypes and Samples

Despite some similarities of psychodynamic patterns or personality "signatures" across addictive behaviors, research has shown meaningful variations as well. The present empirical base on substance and behavioral addiction tends to focus on specific substances or clusters of behavioral pathology (cf. Flory, Lynam, Milich, Leukefeld, & Clayton, 2002). For example, most studies of personality underpinnings of substance abuse are conducted among those with alcohol use disorder; few studies simultaneously consider individual differences among those with polydrug use disorder, or comorbid substance use and behavioral addictive disorders. A small body of emerging literature has suggested that certain personality traits are uniquely related to alcohol, other substance use, and eating disorders.

The vast majority of research on addiction has centered on alcohol use. Person-centered research has confirmed that alcohol users tend to share similar characteristics, and their personality patterns differ systematically from those who have other comorbid substance use disorders, or nonalcoholic drug users. Compared to their non-substance using counterparts, people with alcohol use disorder are more likely to have high levels of negative and reactive emotional experiences, whereas nonalcoholic substance users are more likely to score low on measures of constraint, traditionalism, and harm avoidance. Whereas polydrug users are described as shy, distrustful, and emotionally unstable, nonalcoholic drug users are particularly low on constraint than individuals who have both alcohol and other substance use disorders. Research has suggested that more socially deviant personality traits are likely predisposing to individuals who abuse illicit drugs without prior involvement with alcohol, a more socially accepted psychoactive substance.

Emerging evidence with community and clinical populations also points to gender differences in the association between personality and addiction. Men with substance use disorders tend to score higher on measures of constraint than their women counterparts, reflecting gender variations in experience and emotion expression.

Extension of Empirical Questions

Research on the relations between personality traits and addiction has helped advance current understanding of characterological vulnerabilities underlying substance use disorders and behavioral addictions. Most importantly, recent studies have shown that the continuum of personality dysfunctions – rather than a discrete constellation of personality traits – is predictive of the occurrence and severity of substance use. The personality–addiction relational patterns also can enhance precision in targeting clinical interventions. For instance, solitary substance users exhibiting high neurotic features might benefit most from therapeutic interventions emphasizing behavioral activation and social skills. Treatments for social users with high levels of extraversion might target skills in developing new and healthy social networks. Realizing the promise of targeting psychosocial treatments to particular patterns of substance and behavioral addictions awaits further empirical investigation of the personality–addiction linkage.

Whereas most research has elucidated the central roles of impulsivity, extraversion, and neuroticism in substance use disorders and pathological behavioral addiction, further work is needed to evaluate their simultaneous importance, and disentangle these relations by examining their respective subcomponents. For example, extraversion has been found to predict addictive behavior in various social contexts, but meta-analytic reviews suggest that it fails to demonstrate predictive validity in substance use and gambling disorders among clinical samples. Impulsivity has been implicated as the primary common personality vulnerability that underlies addictions regardless of DSM diagnoses. The four components of impulsivity reflect diverse narrow-band characteristics, which complicates empirical study of the impact of "general" impulsivity on addictions. Similarly, neuroticism encompasses withdrawal tendencies (depression, anxiety, vulnerability to stress, and self-consciousness) and volatile tendencies (anger hostility and impulsivity/urgency), each of which might relate to substance use in different ways.

Apart from predictions based on broad personality patterns, the current literature also is limited in establishing proximal predictors linking personality traits and addictive behaviors. It is likely that drug/behavior-specific expectancies, emotion regulation and distress tolerance, and meta-emotion mediate the roles of basic personality tendencies on addictions. For instance, disinhibition and low levels of characteristic persistence on psychological and physical tasks may operate via distress intolerance, leading to maladaptive addictive behaviors. Validating risk mechanisms would be especially valuable in generating clinical interventions that target these proximal, social-learning risk factors.

The tradition of examining characteristic patterns (including addictive personality) as vulnerability factors for addictive behavior has overshadowed research on protective personality traits. Some empirical investigations suggest that trait mindfulness, religiosity, and virtues including transcendence and temperance can protect against problematic substance use. For instance, there are small negative associations between trait mindfulness and substance use disorders, and between temperance (self-regulatory abilities) and drinking-related risky behaviors and adverse consequences. Individuals' ability to act with awareness in a nonjudgmental and nonreactive manner particularly is strongly related to lower problematic alcohol use and tobacco use in inpatient clinical samples.

A final limitation of the existing knowledge base on substance use disorders and problematic addictive behavior is the narrow range of demographic characteristics included in many research samples: investigations tend to focus on college students and Whites. Given that college students in emerging adulthood have the highest prevalence of alcohol use and are at increased risk for pathological substance use across life span, the rich empirical evidence on the relations between personality and addiction in this population is well justified and vital. Focusing heavily on this selected group of individuals, however, restricts the ranges of age, social contexts, and frequency and severity of substance and behavioral addiction represented in the literature. In addition, this also likely limits scientific understanding of the ranges and parameters of personality–addiction relations. Studies that use samples whose personality and/or addictive behavior fall in the abnormal range and who are treatment seeking will deepen the present empirical knowledge tremendously. The predominant focus on European White and White American samples is appropriate for understanding common patterns of the impact of personality on addictive behavior within the United States context: Whites have shown the highest prevalence

of substance use disorders, certain eating pathologies, and gambling disorder, relative to their ethnic minority counterparts. Epidemiological evidence is less clear with regard to the prevalence and adverse consequences of these disorders among immigrant and domestic ethnocultural groups of Asian and Hispanic backgrounds. What remains unknown is whether commonly reported patterns are generalizable to other ethnocultural groups, and what cultural differences (e.g. mean levels of personality traits, drinking norms) may affect these relation.

See Also

Conscientiousness
Eating Disorders
Extraversion
Impulsivity
Neuroticism
Sensation Seeking

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Borderline Personality Disorder

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Introduction

Borderline personality disorder (BPD) is a highly prevalent, chronic, and debilitating disorder characterized by instability in one's sense of self, others, and mood. This instability is expressed as emotional lability, impulsivity, interpersonal dysfunction, angry outbursts, suicidality, and non-suicidal self-injury. Historically, BPD has been thought to be difficult to treat. Those with BPD tend to be high service utilizers, often in a chaotic manner. BPD is frequently comorbid with a number of other psychological disorders, particularly mood, anxiety, PTSD, and substance use disorders. When BPD is comorbid with other disorders, it has negative effects on the clinical course and outcome of those conditions. Regardless of comorbidity, BPD is related to a host of other negative and costly outcomes, including higher rates of physical and mental disability, and significant long-term functional impairment across multiple domains. Given the severity of the symptoms, the high prevalence rates, complex comorbidity, and negative effects of BPD in general and on other disorders, BPD is a major public health concern.

Epidemiology

Recent epidemiological studies suggest that BPD, with prevalence rates between 1–6% in the general population, is more common than schizophrenia, bipolar disorder, and autism combined. Clinical studies have found that 15–20% of outpatients and up to 40% of inpatients are diagnosed with BPD. BPD is often thought to occur more frequently in women than in men. Some studies have found that women account for 75% of the cases of BPD presented to outpatient departments. A number of explanations have been proposed to explain this disparity. Some authors have suggested that gender differences in prevalence rates may be due to gender bias while others have suggested that this discrepancy results from differences in symptom presentation. Women present with dramatic symptoms such as self-injury, while men present with more impulsive and substance-related symptoms.

Other authors have suggested that women are more likely to seek treatment for symptoms related to BPD, whereas men with BPD are more likely to be in substance abuse or mandated treatment programs. However, recent epidemiological studies have found little or no differences in the prevalence of BPD between men and women.

Comorbidity with Other Psychological Disorders

BPD is frequently comorbid with a number of other psychiatric and psychological disorders such as depression, bipolar II, anxiety disorders, eating disorders, substance abuse disorders (SUD), and posttraumatic stress disorder (PTSD). This pattern of comorbidity is often referred to as *complex comorbidity* because of the number of comorbid diagnoses and the pattern that includes both internalizing and externalizing disorders. This comorbidity is especially meaningful in that the presence of BPD negatively affects the course and treatment efficacy for these disorders. Although the negative relationship between BPD and these disorders can be reciprocal, particularly for SUD and PTSD, the relationship tends to be unidirectional with regard to depression, bipolar II, and anxiety disorders. That is, the presence of BPD negatively affects the course and outcome for these disorders *but* several independent longitudinal studies comprising of thousands of patients suggest these disorders tend to have little effect on the course and outcome of BPD. For example, bipolar patients with comorbid BPD are more likely to be unemployed, use more medications, have increased rates of alcohol and substance use disorders, show poorer treatment response, and have significantly worse interepisode functioning. However, in these studies, a comorbid bipolar disorder did not affect the course or outcome for BPD patients. Likewise, a number of large-scale studies have now found that improvements in BPD were often followed by improvements in major depressive disorder but that improvements in major depressive disorder are generally not followed by improvements in BPD.

Clinical Presentation

BPD is a complex and heterogeneous clinical problem characterized by instability in self-image, mood, and interpersonal relationships. This instability manifests itself as impairments in identify, self-direction, empathy, and intimacy. DSM-IV and DSM-V note nine possible criteria for BPD. These include frantic efforts to avoid abandonment, unstable intense relationships, marked persistent identity disturbance, impulsivity, recurrent suicidal threats, gestures, and behaviors, affective instability, chronic feelings of emptiness, intense anger, and transient, stress-related paranoid ideation or dissociation. In order to be diagnosed with BPD, one has to meet any five of the nine criteria. This polythetic approach results in 256 different ways to meet criteria for BPD. Such heterogeneity is characteristic on many DSM disorders. For instance, there are also 256 different ways to meet criteria for major depressive disorder and 636,120 ways to have posttraumatic stress disorder. Nonetheless, BPD is heterogeneous. For instance, one study found 136 different combinations in a sample of 252 patients. The maximum number with the same combination was eight.

Suicidality

The most serious symptoms of BPD are the high rates of non-suicidal self-injury and suicidality. More than 84% of patients with BPD report some history of suicidal behavior, averaging 3.4 lifetime attempts. The rate of completed suicide among individuals with BPD is also very high. A recent meta-analysis found that 8% of over 1,100 patients completed suicide. This rate is not only much higher than the general population but also higher than other psychiatric disorders. For example, other meta-analyses found a suicide rate of 2.3% among over 1,500 patients with anorexia nervosa and 1.3% for unmedicated bipolar disorder. Predictors of suicidality include history of parasuicidality, hospitalizations, younger age, hostility, and impulsivity.

Non-Suicidal Self-Injury (NSSI)

Perhaps the most perplexing symptom of BPD is non-suicidality self-injury. Studies show that 70–75% of those with BPD have engaged in self-injurious behaviors, the most frequent behaviors tending to be cutting, burning, and overdosing. The reasons reported for engaging in NSSI are varied. Some have suggested that those with BPD are less receptive to pain. The evidence is mixed on this, as other studies have found that those with BPD tend to be sensitive to pain, particularly chronic pain syndromes. Other reasons reported for NSSI include combating feelings of dissociation, self-punishment, asserting control over one's behavior, distracting oneself from psychological pain with physical pain, releasing pent-up feelings of anger, guilt, shame, and stress, and to show others how bad they are feeling. Studies indicate that about a third of those with BPD who engage in NSSI begin prior to age 13, a third begin during adolescence, and a third begin in young adulthood. It is rare for those with BPD to begin cutting after their thirties, though it can occur. It is important to note that NSSI increases the risk for suicide attempts and death even in the absence of suicidal ideation. In fact, many patients with BPD accidently kill themselves while engaging in NSSI.

Assessment, Diagnosis, and Misdiagnosis

Despite the consequences of BPD, evidence suggests that clinicians often fail to recognize and diagnose personality disorders in ordinary clinical practice. One study found that 74% of BPD patients had previously been misdiagnosed despite an average of 10 years since their first psychiatric encounters. The most common false-positive diagnoses were bipolar disorder, depression, and anxiety disorders. Another large-scale outpatient study found that clinicians in routine practice diagnosed BPD in only 0.4% of almost 500 patients seen, compared to 14.4% prevalence derived when using structured interview with those very same patients. Importantly, when clinicians were provided with the findings from the structured interviews, the likelihood of the BPD diagnosis increased from 0.4 to 9.5%. Clearly the information from the structured interviews had clinical utility because the information from the structured interviews was used two-thirds of the time.

Clinicians who do not use structured or formal assessments of BPD are very likely to miss many cases of BPD, which can result in incomplete treatment. Therefore, it is recommended that clinicians formally assess for BPD as part of routine practice. It is particularly important to do so when a patient meets criteria for a disorder commonly comorbid with BPD (major depression, bipolar disorder, an anxiety disorder, posttraumatic stress disorder, or a substance use disorder). A comorbid BPD diagnosis will likely affect the course and outcome if not addressed. Likewise, complex comorbidity and/or a history of being diagnosed with various psychological disorders would also suggest to clinicians that they should formally assess for BPD. Although common comorbidities (e.g. major depression) may require simultaneous treatment with BPD, it is important not to assume that treatment of these conditions will result in the remission of BPD and privilege those treatments to the neglect of treating BPD. The evidence strongly suggests the contrary.

Treatment

BPD has historically been thought to be difficult to treat because patients frequently do not adhere to treatment recommendations, use services chaotically, and repeatedly drop out of treatment. Many clinicians are intimidated by the prospect of treating BPD patients and are often pessimistic about the outcome of treatment. Psychotherapists treating patients with BPD have displayed high levels of burnout and have been known to be prone to enactments and even engagement in iatrogenic behaviors. However, controlled trials strongly suggest that, contrary to popular belief, BPD is a treatable disorder.

Psychotherapy

There are now several treatments – deriving from both the cognitive-behavioral and psychodynamic traditions – that have shown efficacy in randomized controlled trials and are now available to clinicians and their patients. Although these treatments are often derived from either a cognitive-behavioral or psychodynamic tradition, they all tend to be either explicitly or implicitly integrative. In addition, there is a short-term psychoeducational, skills-based group called STEPPS, which has been found effective as an adjunct with other psychological treatments, and the American Psychiatric Association practice guidelines referred to General Psychiatric Management in conjunction with psychodynamic psychotherapy designed specifically for BPD has been shown to be efficacious. Thus, practitioners and patients have a range of options across a number of orientations available to them. Although DBT has been tested in more randomized controlled trials than the other treatments, findings from both direct comparisons and meta-analytic studies are clear that there is no advantage provided by DBT compared with these other approaches. Thus, there are a number of equally good treatments available to patients with BPD and there is no credible or reliable evidence that any one treatment is significantly better than any other.

Treatment Length

Because BPD is a chronic disorder that has developed over many years, it will most likely require a longer-term treatment that meets at least weekly. To date, all efficacious treatments

for BPD are a multiyear process (although most have only examined efficacy after one year of treatment). These treatments tend to be very intense and for two to five hours a week.

Expected Outcomes

Given the heterogeneity of BPD, having different treatment options is important because it is unlikely that any one treatment will be useful for all patients. Findings from randomized controlled trials (RCTs) suggest that about 50–60% of patients make symptomatic improvements within a year of treatment. Many of these individuals show changes within four to six months of treatment. Despite positive findings from RCTs, almost half the patients in treatment are not responding, regardless of treatment. Additionally, although many patients have shown symptomatic improvement and even diagnostic remission, they still experienced significant social and functional impairments. Thus, a significant portion of individuals receiving an efficacious treatment are not improving, and these individuals might be better served in different treatments.

Therapist Training

Although many of the existing empirically supported psychotherapies share many techniques with standard cognitive-behavioral therapy (CBT) and psychodynamic (PDT) treatments as they are commonly practiced in the community, it is important to note that there is little evidence that unmodified CBT or PDT (or humanistic) treatments are of benefit for those with BPD. The one RCT comparing standard CBT with treatment as usual found no reliable differences favoring CBT. The empirically supported treatments such as DBT, MBT, TFP among others have all been significantly modified from standard CBT and PDT approaches. Examples of modifications include provision of supervision or intervision, the explication of a coherent model of the problem and treatment, an increased attention to explicit frame issues, as well as a clear focus and priorities, vigilance for indications of colluding with the patient, acting out or iatrogenic behaviors on the therapist's part, and integration with other services among other aspects. These modifications are important and therefore it is recommended that clinicians who treat individuals with BPD have training in one or more of the empirically supported treatments and employ evidence-based principles deriving from these treatments and should not be using unmodified CBT and PDT.

Medications

Medications appear useful as adjunctive in the treatment of BPD but are generally not thought to be sufficient by themselves. No one specific medication has been shown to be efficacious in the treatment of BPD, which has led to a medication approach of targeting specific symptom domains rather than the disorder as a whole. The symptom domains of affect/mood, cognitive-perceptual processes, and impulsivity are frequent targets. However, this approach has become problematic, as the algorithms become quickly outdated, and the approach has led to increased rates of medication use and complicated polypharmacology issues. Such polypharmacotherapy has been associated with a number of untoward effects, including paradoxical side effects, adverse events, iatrogenic symptoms, and negative health

outcomes such as obesity and diabetes (being on three or more psychotropic medications is a greater risk factor for obesity than a family history of obesity or a sedentary lifestyle). Additionally, prescribed medications are often used in drug overdoses. There is some evidence for the superiority of monopharmacotherapy with BPD patients and for selecting medications based on tolerability and safety rather than symptom picture. Additionally, some RCTs have convincingly shown decreases in medication use related to psychotherapy efficacy.

Community Recommendations

BPD is a heterogeneous disorder. Only about 50% of patients respond to any of these treatments, and treatment responses, while clinically significant, are nonetheless incomplete. Hence, it is recommended that communities have several of the evidence-based treatments available to patients and that therapists consider obtaining expertise in more than one evidence-based therapy. Given the heterogeneity seen in BPD, it might be useful if the approaches available included both CBT- and PDT-based treatments.

See Also

Antisocial Personality Disorder
Histrionic Personality Disorder
Personality and Suicide

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Antisocial Personality Disorder

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Antisocial personality disorder (ASPD) describes a pervasive pattern of disregard for, and violation of, the rights of others that begins in childhood or early adolescence and continues into adulthood. According to the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V; American Psychiatric Association (APA), 2013), the diagnostic criteria includes repeated lawbreaking, deceitfulness, impulsivity, irritability and aggression, recklessness, consistent irresponsibility, and remorselessness. Diagnosis is also contingent on evidence of conduct disorder (CD) before age 15 years. Approximately 25–50% of individuals with CD meet ASPD criteria. Although greater severity of CD and childhood-onset rather than adolescent-onset CD have been associated with higher ASPD risk, it has been suggested that the type of adolescent antisocial behavior (rule-breaking, rather than aggression) constitutes the strongest predictor of ASPD symptoms.

In the general population, estimates of the lifetime prevalence rate are 1–4%. As ASPD is closely linked to violence and crime, it is overrepresented in the criminal justice system. Approximately 30% and 40–80% of individuals are diagnosed with ASPD in civil psychiatric facilities and forensic or correctional settings, respectively.

ASPD, particularly in males, has been consistently associated with higher recidivism rates. One study found that 41% of offenders with ASPD who were released from high-security settings reoffended within two years. Within a correctional setting, however, a study on prison systems in the United States revealed that an ASPD diagnosis could not predict offenders who would engage in institutional misconduct during their first year of incarceration. Empirical evidence suggests that the only aspect of the diagnosis that showed any potential utility for forecasting misconduct is CD symptom count.

Conceptualization and Categorization

Although the definition of ASPD was first modeled after psychopathy in its introduction in the DSM-III (APA, 1980), unlike psychopathy, ASPD diagnosis is primarily behaviorally based. It excludes several personality traits characteristic of psychopathy such as glibness, grandiosity, and callousness (see Hare, 1991). There remains a debate however, as to whether psychopathy is a more severe form of ASPD or if both constructs reflect separate diagnoses. Complications in treatment development may arise if the two disorders are deemed clinically interchangeable.

At the epidemiological and etiological levels, several findings support a distinction between psychopathy and ASPD. First, estimates of the prevalence of ASPD and psychopathy differ. An asymmetric association has been reliably found whereby most psychopathic individuals meet criteria for ASPD, but many with ASPD do not meet criteria for psychopathy. Second, differences between ASPD-diagnosed individuals with and without psychopathy have been observed. For example, male ASPD offenders with low psychopathy scores were documented to commit more perseverative errors and responses in the Wisconsin Card Sorting Test than those with high psychopathy scores. In another study, structural brain differences were noted. ASPD-diagnosed violent offenders with psychopathy displayed lower gray matter volumes in the superior/medial prefrontal cortex and temporal poles compared to individuals with ASPD but not psychopathy. Moreover, with respect to the amygdala, ASPD individuals without psychopathy exhibited hyperactivity in this brain region, while those with psychopathy showed hypoactivity in response to threat. These differences support the notion that psychopathy and ASPD may represent separate clinical constructs.

Other conceptual debates regarding ASPD involve the contention that there is too much commonality with other psychiatric disorders and the diagnosis is too broad. Another issue concerns the application of ASPD to racial and ethnic minority groups with histories of oppression. It has been argued that the diagnosis may be unfairly applied to impoverished groups for whom antisocial behaviors may be part of an adaptive survival strategy. This emphasizes the importance of taking into account cultural context in diagnosing and treating ASPD.

Sex Differences

ASPD is more common in men than women. Studies document that 2–6% of males and 0.5–2% of females in the general population meet diagnostic criteria. This pattern is replicated in criminal justice settings. Although there are some differences in prevalence rates across countries, a review of studies worldwide indicated that 47% of male prisoners were diagnosed with ASPD, while 21% of female prisoners received the diagnosis. Explanations for the sex difference are not well-investigated. In perhaps the only study on this topic, the sex difference in ASPD was found to be partly accounted for by lower gray matter volumes in three regions of the prefrontal cortex.

Unlike the prevalence ratio of men to women, a smaller body of research exists on sex differences regarding correlates of ASPD. Research has found that compared to men, women with ASPD reported more childhood emotional and sexual abuse, parent-related

adverse events in childhood, and adverse events during adulthood. Although ASPD has been consistently documented as a risk factor for intimate partner violence, there is a stronger association between male ASPD and reports of physical partner violence perpetration and victimization compared to female ASPD.

Comorbidities with other psychiatric disorders also differ between ASPD-diagnosed males and females. For instance, the percentage of ASPD individuals with comorbid borderline and histrionic personality disorders has been documented to be higher among women than men. Females with ASPD have also been suggested to be more vulnerable to substance use disorders. Conversely, more ASPD-diagnosed men have cocaine use disorder.

Association with Other Disorders

Besides psychopathy, evidence from epidemiological samples indicates that anxiety disorders, especially social anxiety disorder and posttraumatic stress disorder, are associated with ASPD. This finding is observed across countries and after adjusting for differences in sociodemographic characteristics and other psychiatric comorbidity. Individuals with ASPD also tend to have a higher prevalence of alcohol, drug, and nicotine dependence than those without ASPD. The high comorbidity is observed even if a substance use disorder has not been diagnosed or if the substance use is legal. Additionally, ASPD diagnoses are particularly prevalent among schizophrenia patients with a history of violence. One study found that the prevalence of schizophrenia was 6.9 and 11.8 times higher among ASPD-diagnosed men and women, respectively, compared to the general population. ASPD is also comorbid with attention deficit hyperactivity disorder, depression, borderline personality disorder, bipolar disorder, and sexual disorders. This has led to the suggestion that the treatment of individuals with ASPD should focus on the management of comorbid psychiatric disorders.

Etiology

Research on putative etiological mechanisms suggests that biological and psychosocial factors contribute to the development of ASPD. A genetic basis to ASPD is supported by the finding that a first-degree biological relative with ASPD constitutes a risk factor for the disorder. Specifically, the risk to biological relatives has been reported to be higher for females rather than males with ASPD. One of the few studies examining the heritability of the personality disorder in men found that 69% and 31% of the variance in ASPD was attributed to genetic and individual-specific environmental influences, respectively. Genetic influences have been found to be largely responsible for the initial level of ASPD symptoms, while non-shared environmental influences were more responsible for change. Longitudinal studies suggest that genetic effects on ASPD traits increase throughout adolescence but stabilize in early adulthood. Additional research is needed, however, to reveal consistent findings on specific candidate genetic variants for ASPD.

Neuroimaging studies have documented that ASPD likely has a neurobiological basis involving structural and functional brain abnormalities, with key impairments commonly found in the prefrontal and temporal cortices. One of the first structural brain imaging

studies of antisocial adults documented an 11% and 14.7% reduction in gray matter volume in the prefrontal cortex of men with ASPD compared to normal controls and a psychiatric control group respectively. Given evidence of gray matter reductions in similar regions among youths with conduct problems, it may be that the brain deficits associated with ASPD are sustained from childhood to adolescence to adulthood. These brain imaging findings are consistent with meta-analytic evidence that executive functioning is impaired in ASPD groups, with a small effect size. Impaired inhibitory control and decision-making have been implicated in ASPD, even in milder manifestations of the disorder.

In addition to abnormalities in the fronto-temporal network, reduced activity in the anterior cingulate, amygdala, and cerebellum have been documented in violent offenders with ASPD compared to nonoffenders. Several recent studies have found an increase in putamen volume in ASPD individuals compared to controls. A difference in the corpus callosum has also been reported between the two groups, with a larger volume exhibited among individuals with ASPD. Overall, reduced whole brain volume has also been observed in an ASPD group, which could be symptomatic of generalized atrophy or attributable to neurodevelopmental abnormalities resulting in reduced cerebrum size. Taken together, these studies provide evidence for the neural mechanisms underlying ASPD.

From a psychological perspective, intelligence has been found to be negatively associated with ASPD. There is also a small body of research documenting that deficits in mindfulness and impairments in mentalization, which encompasses the ability to reflect and think about one's mental states, are related to ASPD traits. Psychosocial risk factors for ASPD that have been consistently found across studies include more strained family relationships, child maltreatment, parental substance abuse, lower income, childhood residential mobility, and bullying.

Treatment

As the prevalence of ASPD is much higher in clinical populations, treatment options for ASPD are typically designed to treat comorbid psychiatric diagnoses or target a specific behavior. Interventions for ASPD have been psychological or pharmacological. Medications suggested as potentially beneficial for ASPD include mood stabilizers, antipsychotics, selective serotonin reuptake inhibitors, and anti-convulsants. One study on the treatment of ASPD with clozapine found that it reduced the clinical severity of the disorder. Promising psychological interventions include cognitive behavioral therapy and contingency management for men with ASPD and cocaine dependency. However, evidence for the efficacy of interventions is generally weak. At present, reviews of pharmacological and psychological interventions reveal that there is insufficient information to provide recommendations for any treatment for ASPD.

Current Emphases and Future Directions for Research

Although, historically, the examination of antisocial traits in females has received little attention, increased empirical attention is being paid to the prevalence, manifestation, and assessment of ASPD in female populations. In addition to studying female samples

across age ranges and settings, calls have been made for a more detailed examination of sex differences in individual ASPD criterion endorsement, as it has been suggested that sex differences in ASPD prevalence may be due to the emphasis on violent and aggressive behavior in the DSM criteria, which is biased against women.

Moreover, Section III of the *DSM* 5 (American Psychiatric Association (APA), 2013) includes an alternative model for personality disorders that emphasizes a dimensional ASPD model with a psychopathy specifier. Several studies have begun to examine aspects of the newly developed Section III trait model in relation to psychopathy. Future research on the psychopathy specifier will be needed to test whether its inclusion adds incremental utility to the understanding of ASPD.

See Also

Antisocial Behavior, Assessment of
Gender Differences in Aggression
Psychopathy

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Obsessive-Compulsive Personality Disorder

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Obsessive-compulsive personality disorder (OCPD), as defined in the *Diagnostic and Statistical Manual of Mental Disorders* (DSM), is a mental disorder characterized by a chronic maladaptive pattern of excessive perfectionism, preoccupation with orderliness and detail, and need for control over one's environment that leads to significant distress or impairment across work, school, and social functioning. Individuals diagnosed with OCPD are reluctant to delegate tasks and work to others, find it difficult to relax, feel obligated to plan out their activities to the minute, and find unstructured time intolerable. In addition, they are often characterized as rigid and controlling in their relationships with others.

A Historical Overview of OCPD

There has been considerable interest in OCPD spanning over 100 years, with a rich historical context in psychoanalytic thinking. For example, Pierre Janet in 1904 first described the development of frank obsessions and compulsions as being preceded by a period he described as a "psychasthenic state," which was characterized by the sense that actions were performed incompletely and thus needed to be done perfectly, as well as a strong focus on order and uniformity. Following Janet's observations, Sigmund Freud in 1908 proposed the construct of the "anal character," which was typified by obstinacy, orderliness, and parsimony (or frugality). For many years, psychoanalysts used the term "obsessive-compulsive neurosis" to describe the features of OCPD.

OCPD was first included in the second edition of the DSM (DSM-II) and initial conceptualizations of the disorder were largely based on Janet's psychasthenic state and Freud's anal character. A subsequent revision of DSM OCPD criteria for the third edition (DSM-III) was highly influenced by the passive-ambivalent character described by Theodore Millon in 1981 as an individual who was serious minded, efficient, rule conscious, and lacking in emotional expression. This emphasis on Millon's research resulted in the inclusion of criteria related to indecisiveness and restricted expression of affect as part of the OCPD diagnosis. These

two criteria were retained in DSM-III-R, but were subsequently deleted in DSM-IV due to their inability to distinguish OCPD from other personality disorders.

The criteria for OCPD were not revised between DSM-IV, DSM-IV-TR, and DSM-V and currently an individual must meet four of the eight following criteria to receive the diagnosis: (1) is preoccupied with details, rules, lists, order organization, or schedules to the extent that the major point of the activity is lost; (2) shows a perfectionism that interferes with task completion (e.g. is unable to complete a project because his or her own overly strict standards are not met); (3) is excessively devoted to work and productivity to the exclusion of leisure activities and friendships (not accounted for by obvious economic necessity); (4) is overconscientious, scrupulous, and inflexible about matters of morality, ethics, or values (not accounted for by cultural or religious identification); (5) is unable to discard worn-out or worthless objects even when they have no sentimental value; (6) is reluctant to delegate tasks or to work with others unless they submit to exactly his or her way of doing things; (7) adopts a miserly spending style toward both self and others; money is viewed as something to be hoarded for future catastrophes; and (8) shows rigidity and stubbornness.

Empirical Evaluations of DSM OCPD

Although OCPD has been a clinically recognized syndrome for over 100 years, there is a relative lack of empirical research on this disorder. This is surprising considering that OCPD has been found to be the most prevalent personality disorder in the general population, with rates ranging from 7% to 8% in large epidemiological studies. In clinical populations, high prevalence rates are also reported and range from approximately 8% in outpatient settings to roughly 28% in inpatient settings. Research shows that there is a considerably higher prevalence of OCPD among men than women, with some studies reporting that men are twice as likely to receive an OCPD diagnosis as compared to women.

Empirical evaluations of DSM OCPD suggest problems with internal consistency, discriminant validity, and temporal stability. For example, investigations have reported internal consistencies for the OCPD criteria that range from insufficient to moderate. In addition, studies show that OCPD has a high degree of co-occurrence with paranoid personality disorder and schizoid personality disorder. Research on the temporal stability of OCPD has shown that roughly 60% of patients who are diagnosed with OCPD no longer meet DSM diagnostic threshold for the disorder after a 12-month follow-up period. This research also shows a remission rate of approximately 38% for OCPD during a 24-month follow-up period.

Several studies have investigated the internal factor structure of OCPD and have found mixed results. For example, some researchers have identified three main dimensions that underlie OCPD (rigidity, perfectionism, and miserliness), which resemble the stubbornness, orderliness, and parsimony initially described by Freud's "anal character." Other researchers have found support for only two dimensions underlying OCPD, though the exact two dimensions differ across studies. Some studies show that the two dimensions are perfectionism and rigidity, while other studies found support for perfectionism and aggressiveness as the two dimensions. Future research on the internal factor structure of DSM OCPD is needed.

Finally, research suggests that the criterion for perfectionism is the best overall predictor of the OCPD diagnosis while the criteria for miserliness and hoarding behavior

(e.g. unable to discard worn-out or worthless objects even when they have no sentimental value) are the worst predictors of the diagnosis. Interestingly, researchers also find that the preoccupation with details criterion is the best predictor of OCPD after a 24-month follow-up period.

Debates Surrounding the OCPD Diagnosis

One of the main debates associated with the OCPD diagnosis is how to best distinguish it from obsessive-compulsive disorder (OCD). The symptoms of OCD are characterized by recurrent, intrusive, and distressing thoughts, images, or impulses (obsessions) and repetitive mental or behavioral acts that the individual feels driven to perform (compulsions) to prevent or reduce distress. While distinct mental disorders in DSM, the overlap in symptom presentations between OCPD and OCD can lead to difficulty differentiating them in clinical practice. For example, while excessive list making can be viewed as a preoccupation with details characteristic of OCPD, it can also be viewed as a compulsion if it is repetitive, time-consuming, and distressing. Similarly, perfectionism is an OCPD criterion and also a symptom of OCD if it involves the need for order, symmetry, and arranging. In fact, prevalence data shows elevated rates of OCPD (approximately 45%) in individuals diagnosed with OCD, suggesting a high degree of diagnostic overlap between these two disorders. Patients with co-occurring OCPD and OCD report a significantly younger age of onset for their OCD symptoms, poorer psychosocial functioning, and a more chronic course of illness. Some researchers have suggested that the presence of co-occurring OCPD may in fact represent a possible subtype of OCD patients, while other researchers argue that OCPD is a distinct diagnosis within the OCD spectrum.

Despite similarities between some OCPD criteria and the obsessions and compulsions of OCD, there are distinct differences between these disorders, particularly in terms of the functional aspects of symptoms (i.e. what motivates the individual to display the symptom). In OCD, obsessions are intrusive, distressing, and generally recognized by the individual as dysfunctional. In contrast, individuals with OCPD often view their traits and symptomatic behaviors as appropriate and correct responses to environmental demands, despite their associated reports of functional impairment in work, school, and relationships.

Treatment Considerations for OCPD

Despite high clinical prevalence rates, there are currently no empirically validated treatments for OCPD. While there is no single treatment model for OCPD, there are several important factors to consider in treatment planning and assessment. The literature regarding treatment-seeking behavior in OCPD has been mixed. Some researchers have found that individuals with OCPD often seek treatment on their own because they are aware of their difficulties. However, other studies have shown that OCPD symptoms related to reluctance to delegate, perfectionism, and rigidity/stubbornness led to these individuals being less likely to seek treatment on their own. Researchers have also found that OCPD was a unique predictor of fewer treatment sessions attended in long-term psychodynamic psychotherapy.

One of the main problems with studying specific treatment modalities for OCPD is that most treatment studies do not separate personality disorders from other major mental disorders, such as depression, anxiety, and OCD. For example, one study examined the effectiveness of cognitive therapy (CT) and interpersonal therapy (IPT) in a sample of depressed patients with co-occurring OCPD or avoidant personality disorder. They found that IPT was significantly more effective in reducing depressed mood with increasing OCPD features as compared to avoidant personality disorder features. In a follow-up study examining the effectiveness of a brief time-limited psychodynamic psychotherapy for depressed and anxious patients with co-occurring OCPD or avoidant personality disorder, the researchers found that while both groups improved significantly on depression, the patients with co-occurring OCPD remained in treatment for significantly more sessions and were less likely to meet diagnostic thresholds for their OCPD symptoms as compared to patients with co-occurring avoidant personality disorder. Given the mixed findings in the treatment literature, more research is needed on treatment considerations for OCPD specifically.

One area for future study is the "positive side effects" of OCPD noted by researchers and clinicians that may prevent these individuals from seeking treatment. Data has suggested that OCPD may in fact enhance life and work success. For example, a few researchers have noted a negative relationship between OCPD and poor functioning in employment. Clinicians caution that these "positive effects" may lead the individual with OCPD to not seek treatment for symptoms that may otherwise be impairing and distressing. Several clinical theorists have hypothesized that individuals with OCPD may in fact function adequately for quite some time, but may eventually begin to feel distressed as they start to realize that they are not as successful in their work and social relationships as others. More longitudinal treatment studies on the course and outcome of OCPD are needed.

See Also

Compulsive Personality
Obsessive Personality
Perfectionism

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Narcissistic Personality Disorder

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Introduction

Although references to narcissism and later narcissistic personality have long appeared in the psychiatric and psychological literature, the concept of narcissistic personality disorder (NPD) was first introduced by Heinz Kohut and appeared in the DSM only in 1980. Beginning with its inception in DSM-III, NPD has been characterized by a pervasive pattern of grandiosity, feeling privileged, entitled, and expecting preferential treatment, as well as displaying an exaggerated sense of self-importance and showing arrogant and haughty behaviors or attitudes. Research on NPD has been relatively sparse compared to other personality disorders leading the disorder being considered controversial and its validity questioned. However, in recent years there has been a burgeoning research literature and with it increasing acceptance of its validity and clinical utility.

Clinical Presentation

NPD is a complex disorder that varies substantially in clinical presentation. Across all personality disorders, NPD spans the broadest spectrum of severity, from extremely high-functioning individuals that often present as charismatic and charming, to low-functioning individuals with a number of problematic comorbidities and functional impairment.

DSM-IV and DSM-V include nine criteria for NPD: a grandiose sense of self-importance, preoccupation with fantasies of grandeur, the belief that one is special and unique, requiring excessive admiration, having a sense of entitlement, being interpersonally exploitative, lacking empathy, having envy for others or believing others are envious of oneself, and showing arrogant and haughty behaviors and attitudes. These criteria emphasizing a sense of grandiosity, however, miss key dynamics seen in individuals with NPD, including vulnerable self-esteem, feelings of inferiority, emptiness, boredom, and affective reactivity and distress (Cain, Pincus, & Ansell, 2008).

Numerous theorists have suggested categorical subtypes of narcissism capturing the distinction between the more overt, grandiose presentation, as described in the DSM, and the more covert, vulnerable presentation. However, recent formulations note that both grandiose and vulnerable presentations can have overt and covert manifestations (Cain, Pincus, & Ansell, 2008). Although many contemporary theorists and researchers have emphasized categorical distinctions among narcissistic individuals, many other clinical writers have stressed that grandiose mental states oscillate or co-occur with vulnerable mental states. Kernberg (1975/1985) noted that the grandiose and vulnerable expressions may reflect different clinical manifestations of the disorder, with some traits being overt and others covert. He contended that narcissistic individuals hold contradictory views of the self that vacillate between the expression of grandiose and vulnerable aspects.

Epidemiology

Consistent with disorders such as schizophrenia, bipolar, and autism, epidemiological studies in community samples indicate a prevalence for NPD between less than 1% and 6.2%, with a mean prevalence of 1.06% (Quirk et al., 2016). It is likely that the prevalence estimates of NPD drawn from epidemiological studies are low in part due to the face validity of the criteria. Furthermore, those with NPD may purposely, out of social desirability, or unconsciously, out of defensiveness, hide or omit important information or interpret and present events in self-serving ways. The patient self-report is thus often unreliable.

As to be expected, prevalence rates of NPD are higher among clinical samples with estimates between 2.3% and 17% (Hörz-Sagstetter et al., 2017). A survey of almost 2,000 experienced psychiatrists and psychologists found that 76% reported treating a patient with NPD in the last six months (Westen, 1997). These findings suggest that NPD is commonly seen by clinicians.

Comorbidity with Other Psychological Disorders

NPD is frequently comorbid with other disorders, particularly substance use disorders, bipolar disorder, and other personality disorders (Zimmerman et al., 2005). NPD most commonly co-occurs with antisocial, histrionic, schizotypal, and borderline personality disorders (BPD) (Levy, Chauhan, Clarkin, Wasserman, & Reynoso, 2009). As with many personality disorders, comorbid disorders are often what first brings individuals with NDP to clinical attention, and the degree of comorbidity is linked to severity (Caligor, Levy, & Yeomans, 2015).

Grandiose and vulnerable narcissistic subtypes are associated with different patterns of comorbidity (Levy, 2012). Depression and anxiety are more common in the vulnerable narcissistic group, as are nonsuicidal self-injury and suicide attempts (Pincus & Lukowitsky, 2010). Grandiose traits tend to be related to substance abuse and comorbidity with antisocial and paranoid personality disorder (Russ, Shedler, & Bradley, 2008). Notably, comorbidity with antisocial personality disorder has the most profound negative impact on prognosis.

Assessment and Diagnosis

Without a systematic assessment of NPD criteria, the disorder often goes unrecognized and thus undiagnosed. However, even with a systematic assessment, the assessment and diagnosis of NPD can be difficult. First, the presentation can be subtle. This is especially true in higher-functioning NPD patients who can be charming or convincing in their perspective, thus obfuscating the dysfunctional dynamics. It is also important to assess for the more vulnerable and covert aspects of narcissism that are potentially less readily observable. Attention to and skill in addressing difficult subjects is needed on the part of the clinician and informant information is often crucial.

Common differential diagnoses for NPD include bipolar disorder, depressive disorders, anxiety disorders, and substance abuse. It is important to decipher whether presenting symptoms signal a comorbid disorder or are better attributed to underlying personality pathology. While manic states can mimic many of the features of grandiose narcissism, the admiration seeking and devaluation of others characteristic of NPD are typically absent in manic individuals. Similarly, chronic substance abuse can affect psychological functioning to simulate NPD. Assessing the chronicity and personality functioning beyond periods of excessive substance use may help disentangle this presentation. Symptoms associated with depressive and anxiety disorders overlap with features of vulnerable narcissism. One can avoid missing the NPD diagnosis by careful evaluation of the patient's sense of self and interpersonal functioning, with more covert grandiosity and a dearth of meaningful relationships signaling personality pathology. Furthermore, other personality disorders including BPD, histrionic, and antisocial personality disorder are common differentials. It is the characteristic grandiosity and need for admiration that most clearly distinguishes NPD from these disorders.

Treatment

The efficacy of psychotherapeutic and psychopharmacological treatment for NPD has not been systematically or empirically investigated. Clinical practice guidelines for the disorder have yet to be formulated, and recommendations for psychotherapeutic management of patients with NPD are primarily based on clinical experience and theoretical formulations.

The grandiosity and defensiveness that characterize NPD make engagement in any form of psychotherapy difficult. These patients are often unable to admit weaknesses, do not appreciate the effect their behavior has on others, and struggle to process and integrate feedback. A consistent finding in the literature is that in patients presenting with major psychiatric disorders, comorbid NPD increases the likelihood of treatment dropout and may slow symptom change. Hilsenroth and colleagues (1998) found that patients with NPD had the highest dropout rate (64%) in a study of early termination in a university-based community clinic. Consistent with this finding, narcissistic grandiosity (but not narcissistic vulnerability) predicted client-initiated termination of psychotherapy at a community mental health center (Ellison et al., 2013).

Psychotherapy

Psychodynamic formulations have led to the proliferation of different treatment approaches, and case reports suggest that these treatments can be effective for some patients. Most influential have been those of Kernberg (1970) and Kohut (1971), each of which focuses on clinical developments in the relationship between therapist and patient in long-term psychotherapy.

In the absence of empirically supported treatments for narcissistic pathology, extrapolating principles from efficacious treatments for near-neighbor disorders with treatment modifications based on theoretical and clinical rationales regarding differences in the disorders. Thus, for patients with NPD, we recommend using empirically supported treatments for BPD that have adaptations for NPD. In particular, we recommend transference-focused psychotherapy (TFP), schema-focused psychotherapy, or dialectical behavior therapy (DBT). All three treatments target psychological capacities thought to underlie and organize descriptive features of NPD.

Treatment Length

Because NPD is a chronic disorder that has developed over many years, it will most likely require a longer-term treatment that meets at least weekly. Treatments designed for near-neighbor disorders such as BPD tend to be long-term. Most are conceptualized as lasting between one and three years or longer; however, more research is needed in this area.

Expected Outcomes

Because of a lack of controlled treatment studies, the expected outcome of treatment is uncertain and probably variable. Based on clinical experience and expertise, Kernberg (1975/1985) suggests that narcissism tends to decrease with age and these individuals may be more amenable to treatment later in life, although he also notes that some individuals with narcissism worsen as they age as their lofty expectations remain unmet or as difficulties associated with the aging process are experienced as an intolerable insult. Consistent with the idea that narcissism lessens over time, a longitudinal study at McLean Hospital following formerly hospitalized patients with NPD found that after three years, only a small portion of patients continued to meet criteria for the disorder (Ronningstam, Gunderson, & Lyons, 1995). Extrapolating from these findings should remain tentative due to small samples, selection bias, and loss of data to follow-up. Additional studies are needed.

Therapist Training

Although, at this time, there are no RCTs of manualized treatments for NPD, a number of scholars have articulated clinical rationale for how best to approach those with NPD or significant NPD traits. It is recommended that therapists treating those with narcissistic pathology, at the very least, be well versed in a well-articulated and coherent approach toward the treatment of these patients. Training in one of the empirically supported treatments for BPD that have been adapted or for which principles have been modified for narcissistic pathology is recommended. One aspect of these treatments that should be emphasized is the importance of supervision or intervision for therapists treating individuals with NPD.

Medications

Pharmacological treatments of NPD have not been studied, and psychopharmacologic intervention is largely symptom driven rather than specific to the diagnosis. At this time, little is known about the overall efficacy of psychotropic medications for the treatment of NPD above and beyond psychotherapy.

Summary and Recommendations

NPD is a heterogeneous disorder that is as common as schizophrenia, bipolar disorder, and autism. It is highly comorbid with a range of disorders yet is frequently unrecognized, especially if not assessed. NPD and NPD traits put patients at risk for dropout and interfere with progress in psychotherapy. We therefore recommend that clinicians are vigilant for indications of NPD or NPD traits. Such vigilance is facilitated by assessing for narcissism during intake interviews, and the use of structured interviews is recommended. Because no randomized control trials have been performed, it is recommended that clinicians adapt an empirically supported treatment for a near-neighbor disorder such as BPD. Problems with narcissism have been discussed by clinical theorists for a number of evidence-based treatments for BPD, most extensively for TFP. In an RCT for BPD, TFP has been shown to reduce dropout among those high in narcissism as compared with DBT and a supportive psychotherapy. Although promising, these results must be replicated.

See Also

Borderline Personality Disorder
DSM-V
Delete: Narcissism, Assessment of

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Schizotypal Personality Disorder

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Schizotypal personality disorder (SPD) is characterized by cognitive, perceptual, social, interpersonal, and behavioral deficits that vary along a continuum of severity. Historically, the diagnostic criteria of SPD were based on two converging lines of research from observations of patients with borderline personality who exhibited attenuated schizophrenia-spectrum traits, and observations of relatives of patients with schizophrenia who exhibited peculiar thinking and social functioning.

A recent large-scale review has shown that just under 4% of individuals from the United States suffer from SPD (Pulay et al., 2009). Individuals were at greater risk for SPD if they were male (4.2%; vs. female 3.7%), separated/divorced/widowed, and received lower income compared to their counterparts.

According to DSM-V, meeting five of the nine features qualifies a diagnosis of SPD: *ideas of reference* (e.g. the feeling that the individual is the impetus of social events); *odd beliefs and magical thinking* (e.g. bizarre beliefs/fantasies that influence behavior yet contradict social norms); *unusual perceptual experiences* (e.g. seeing things that no one else can see); *suspiciousness/paranoia* (e.g. unfounded persecutory thoughts); *social anxiety* (e.g. excessive worries that do not decrease overtime); *lack of close friends* (e.g. no intimate relationships); *blunted/constricted affect* (e.g. flat/limited emotional response); *odd behavior* (e.g. peculiar dress style/behavior); and *disorganized thinking and speech* (e.g. vague/convoluted speech). Symptoms of SPD are sometimes referred to as positive (magical thinking, perceptual abnormalities, ideas of reference) and negative (few friends, social anxiety, blunted affect) features.

The last two decades have witnessed a strong increase in research on schizotypy both in clinical and community populations. A recent PsycInfo search across 27 databases returned 2,240 publications, 32% of which were published in the last five years. Such growth in research interest could be attributed to three reasons, all of which predicate on the dimensional nature of SPD.

First, schizotypal traits exist on a continuum of severity. On the one end of the spectrum are clinical patients who suffer severe, persistent SPD symptoms (1%–3%) and on the other end are individuals in the general population who exhibit attenuated, infrequent traits (0.7%–5%). Understanding that SPD traits exist at the community level has spurred new research questions and possibilities pertaining to the etiology of SPD. Numerous studies to date confirm that schizotypy exists in the community and can be screened for reliably. For instance, 55% of individuals scoring in the top 10% of the Schizotypal Personality Questionnaire (SPQ) receive a diagnosis of clinical schizotypy (Raine, 1991). Thus, community studies of SPD have the potential to unravel developmental precursors of SPD.

Second, in the last two decades, schizotypy research has become an international endeavor. In addition to the continual interest in the etiology of SPD and schizotypy, roughly 10 to 15 publications annually have focused on validating assessments of schizotypal traits across cultures and in younger populations, broadening the scope of research participants culturally and developmentally.

Third, supporting evidence for schizotypy as a construct offers researchers an avenue to understand the development and etiology of schizophrenia-spectrum disorders. For example, genetic studies have found that relatives of schizophrenia patients were more likely to exhibit symptoms of schizotypy compared to controls (Battaglia et al., 1995), suggesting that a better understanding of schizotypy may inform our understanding of schizophrenia. Prospective longitudinal studies that assessed the same cohort of individuals over time have also documented a 20%–40% conversion rate to schizophrenia among individuals who received a diagnosis of schizotypy early on in life (Larson et al., 2010). Although generally lower rates have been found in undergraduate community populations, these findings suggest that disabling disorders like schizophrenia may have its roots in the form of SPD in early development.

Multidimensionality

SPD and schizotypy have consistently been found to be a multidimensional construct. Though findings have been mixed, the most commonly reported finding in the literature is a three-factor structure: *cognitive-perceptual disturbances* (ideas of reference, odd beliefs, perceptual disturbances, and paranoia/suspiciousness), *interpersonal deficits* (lack of close friends, social anxiety, paranoia/suspiciousness), and *disorganized behavior* (odd speech/thought, blunted affect, odd behavior). Recent findings have indicated that the cognitive-perceptual and disorganized factors exhibit higher sensitivity and discriminate validity in the SPD diagnosis compared to other personality disorders in the DSM-IV. In particular, paranoia/suspiciousness, one of the most common symptoms in patients with schizophrenia, has been found to cross-load on two factors and exist at attenuated levels in community young adults and youths (Wong et al., 2014). There is growing research interest on whether other symptoms exist earlier on in development.

Assessment

Categorical (clinical) and dimensional (personality) approaches predominate the assessment of schizotypal personality. Informing the clinical literature are clinical diagnostic instruments that include the Structured Clinical Interview for DSM-IV Axis II Personality

Disorders, the Structured Interview for Schizotypy, and its revised version, which assesses a broad range of schizotypal symptoms within the context of the family and signs in first-degree relatives of schizophrenia patients and normal subjects. Complementing the categorical approach is the dimensional approach, which primarily consists of self-report questionnaires; namely, the pioneering Chapman et al.'s (1976) "psychosis-proneness" scales of physical and social anhedonia and Raine's SPQ (1991), which has been modeled on the DSM-III diagnostic criteria for schizotypal personality, with shortened (SPQ-B) and child-appropriate versions (SPQ-C) that extend the research scope to include younger children (Liu et al., 2019). The Oxford-Liverpool Inventory of Feelings and Experiences is another frequently used scale, as is the Rust Inventory of Schizotypal Cognitions, the Community Assessment of Psychic Experiences, and the Schizotypal Personality Scale.

What Are the Causes?

Psychosocial influences. Cross-sectional and prospective studies using both self-report and official records have observed that schizotypals are more likely to report child abuse, poor parental bonding/attachment, and trauma (including bullying and PTSD) compared with controls (Cutajar et al., 2010; Schürhoff, et al., 2009). Prospective attachment studies converge on the finding that poor parental bonding, that is anxious attachment (denoted by an anxious child in the absence of an attachment figure), is linked with positive schizotypy, and avoidant attachment (denoted by a child who shows little emotional distress in the absence of an attachment figure) has been linked with both positive and negative schizotypy (Korver-Nieberg et al., 2014). In the maltreatment literature, neglect appears to be central in schizotypals' lives. Specifically, victims of physical neglect have a 4.9-fold increase in SPD (Johnson et al., 2000). In a recent longitudinal study, children left home alone at age 3 were more likely to report higher levels of psychotic symptoms and antisocial behaviors and schizotypal traits and crime at ages 17 and 23 years, respectively, compared with children cared for by their parents/relatives (Wong, Raine, & Venables, 2018). This further supports a social explanation for schizotypy. Why psychosocial factors should result in schizotypal symptoms remains largely unknown, albeit some speculate that early abuse, neglect, and stress may result in structural and functional brain differences that give rise to schizotypal symptoms (Cannon et al., 1994) or in some cases, cause children to be more prone to becoming bully victims at a young age (Wong & Raine, 2019).

Genetic and neurodevelopment. Family studies have provided initial evidence that SPD is genetically associated with schizophrenia and that it is genetically related to itself. In particular, cognitive-perceptual features of SPD are genetically unrelated to schizophrenia, but are related to hostility, aggression, and affective instability (Dinn et al., 2002; Wong & Raine, 2019). Initial work at the symptom level, such as paranoia, also suggests that it is partially heritable (Zhou et al., 2018). This latter literature examining the symptom level along a dimension and the SPD-externalizing behaviors link, though growing, is still limited.

In terms of neurodevelopmental links to schizotypy, results from the Mauritius Child Health Project and an independently Finnish sample demonstrated that influenza exposure in the fifth month of pregnancy has been linked to positive symptoms of schizotypy at age 17, while negative symptoms at the same age have been linked with cold temperature exposure in the second trimester (Venables, 1996). Birth complications (i.e. low birth

weight and obstetric complications) and prenatal stress have also been associated with more cognitive-perceptual and disorganized features of schizotypy in early childhood and later adulthood, respectively (Machon et al., 2005), while prenatal malnutrition is linked to higher levels of schizotypy in adulthood.

Psychophysiology. The psychophysiological evidence for SPD is extensive and mirrors the psychophysiological deficits found in schizophrenia patients. Raine and colleagues (2002) found that increased orienting and arousal at age 3 predisposes to increased schizotypal personality 20 years later. Eye-tracking impairments and startle-blink reflex have consistently been observed in schizotypals. Furthermore, a reduction in the suppression of auditory P50 and P300 event-related-potential have been found in SPD patients and individuals with schizotypy, which indicates impaired selective attention (Niznikiewicz et al., 2009). One hypothesis is that these impairments may explain why patients with SPD fail to filter out irrelevant external stimuli that could contribute to their distorted cognitive-perceptual features.

Neurocognition and brain imaging. A review of the brain-imaging studies suggests that the most impaired areas found in both schizotypal personality and SPD individuals include: executive functions, sustained attention, working memory, verbal and spatial learning and memory, latent inhibition, negative priming, hemisphere asymmetry, and motor skills (Raine, 2006). These studies report increased prefrontal activation as measured by EEG, and the performance of schizotypals tends to fall between the range of normal controls and schizophrenia patients. However, a few studies have also documented enhanced creativity/ divergent thinking in schizotypy; which has been attributed to increased right hemisphere functioning and right prefrontal activation. Schizotypals underperform on facial emotional recognition tasks, struggle to label positive emotions, fail to think in another person's perspective (poor theory of mind), and overrespond to hostile/threatening stimuli compared to controls. A review of brain structure studies (n=17) found that SPD patients have abnormalities paralleling those found in schizophrenia patients in the superior temporal gyrus, parahippocampus, corpus callosum, thalamus, and septum pellucidum, as well as in total cerebrospinal fluid volume (Dickey et al., 2002). However, unlike schizophrenic patients, SPD patients showed normal functioning in the medial temporal lobes. On balance, the imaging findings suggest that SPD represents a milder form of disease along the schizophrenia continuum.

What Are the Cures?

Given the literature on brain deficiencies, carefully designed randomized placebo-controlled trials (RCTs) of biosocial interventions on schizotypal traits have been promising. One stratified RCT showed that early environmental enrichment consisting of physical exercise, cognitive stimulation, and nutritional enhancement at 3–5 years both improved brain functioning at 11 years and reduced schizotypy at ages 17 and 23 years (Venables & Raine, 2012). Omega-3 supplementation in those at risk of schizophrenia has been shown to reduce later breakdown for schizophrenia, suggesting that this nutritional supplementation could be helpful in reducing schizotypal traits. It has also been suggested that other promising areas of research requiring the development of new child-appropriate

assessment tools may complement existing lines of intervention research using genetic designs and involve examining parent-child interactions and the transmission of schizotypal traits in early childhood (Wong & Esposito, 2019; Wong & Raine, 2018)

See Also

Paranoid Personality Disorder
Schizoid Personality Disorder

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Avoidant Personality Disorder

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Diagnostic Classification

In the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V) published by the American Psychiatric Association (APA) (2013), avoidant personality disorder (AVPD) is defined as a persistent pattern of social reticence or avoidance, feelings of inadequacy and social incompetence, fear of rejection, and hypersensitivity to negative evaluation, beginning by early adulthood and present in a variety of contexts. It is classified as a Cluster C personality disorder (PD) by the DSM-V (American Psychiatric Association, 2013), and as with other PDs, it must reflect long-term, inflexible patterns of behavior, feelings, and thoughts, and cannot stem from substance use or other medical conditions.

Individuals with AVPD frequently desire isolation, feel unworthy or incompetent, and remain highly alert for any negative assessments by other people. According to the DSM-V (American Psychiatric Association, 2013), to be diagnosed with AVPD, at least four of the following seven diagnostic criteria must be present: (1) due to fears of rejection and criticism, an avoidance of activities that require significant interaction with other people; (2) an unwillingness to get involved in a relationship unless acceptance or approval is assured; (3) restrained or inhibited behavior in serious emotional relationships, for the purpose of avoiding humiliation and ridicule; (4) an undivided focus on preparing for and avoiding criticism, embarrassment, or rejection in social situations; (5) reserved or inhibited behavior in new interpersonal situations because of overwhelming feelings of incompetence; (6) a view of the self as socially challenged and inferior to others; (7) an unwillingness to participate in novel activities or take personal risks because they may lead to shame or humiliation.

In addition to this categorical approach to diagnostic classification, the DSM-V (American Psychiatric Association, 2013) features a proposed dimensional model for PDs. The alternative model involves measuring degrees of impairment in personality functioning, namely self-definition (identity, self-direction) and interpersonal capabilities (empathy, intimacy). The model also evaluates PDs based on the severity of certain pathological traits; for AVPD, these are detachment and negative affect. According to the model, detachment in AVPD

may manifest as social withdrawal or reticence, avoidance of intimacy, or anhedonia, and the trait of negative affect is characterized by anxiousness. AVPD identity-related impairments include low self-esteem and excessive shame, while the impairment for self-direction involves a disinclination to take risks and participate in activities involving social interaction. The empathy impairment can manifest as a preoccupation with rejection influenced by distorted assumptions of what other people are thinking, and impaired intimacy can include diminished mutuality or reciprocity within a close relationship, stemming from fears of humiliation.

This alternative approach in the DSM-V draws on the paradigm of the Five Factor Model (FFM) of personality traits. Dimensional trait models such as the FFM conceptualize PDs in terms of maladaptive and more severe versions of normal personality traits, which include extraversion, agreeableness, and neuroticism. Though additional research is needed (Winarick, 2017), the FFM model has received support in existing research findings for its characterization of AVPD having a positive relationship with neuroticism and a negative relationship with extraversion.

There is also evidence of a possible relationship between changes in normal personality traits and changes in AVPD symptomatology over time. In one longitudinal study, a decrease in AVPD symptoms was associated with increases in dominance and affiliation, and a decrease in neuroticism (Wright et al., 2013); what drives these changes remains unclear, as does the nature of the interactions between the personality traits and AVPD symptomatology. Which symptoms tend to be the most resistant to change, and why? This research raises important questions about the trajectory of personality pathology, including AVPD, and the relationship between normal and maladaptive features of personality.

Prevalence and Comorbidity

Data from the 2001–2002 National Epidemiologic Survey on Alcohol and Related Conditions (NESARC) suggest a prevalence of approximately 2.4% for AVPD in the US population. A revised analysis of NESARC data, which did not accept PD criteria unless they also engendered a significant amount of impairment and distress, found an estimated prevalence of 1.2%, with the AVPD diagnosis more common among women (Trull et al., 2010).

AVPD is comorbid with a number of other disorders. Evidence from clinical samples includes a study involving 859 psychiatric outpatients where AVPD was the most common specific PD, with a prevalence rate of 14.7% (Zimmerman et al., 2005).

Depressive disorders and anxiety disorders are often diagnosed with AVPD, with especially high comorbidity between AVPD and social anxiety disorder or social phobia (McGlashan et al., 2000; Friborg et al., 2013). AVPD also frequently occurs with other PDs, including dependent disorder, borderline disorder, and the Cluster A group (schizotypal, schizoid, paranoid) (Winarick, 2017).

Research on genetic epidemiology has yielded evidence of a genetic liability shared between AVPD and schizoid personality disorder (SZPD) and between AVPD and schizophrenia spectrum pathology more generally, along with evidence of genetic risk factors common to AVPD and social anxiety disorder (Reichborn-Kjennerud, 2010).

Diagnostic Overlap with SZPD and Social Anxiety Disorder

A discussion of the historical development of AVPD as a construct can be found in Sanislaw et al. (2012). Descriptions of personality types exhibiting characteristics associated with AVPD emerged during the first half of the twentieth century. The first two editions of the DSM did not include a distinct AVPD diagnostic classification; the characteristics of avoidant personality were absorbed into the DSM's schizoid personality construct.

In the late 1960s, Theodore Millon drew on social learning theory to argue for a distinction between avoidant and schizoid personalities, with an avoidant personality characterized by a pattern of active detachment from interpersonal relationships, in contrast to the passive detachment of the schizoid personality. AVPD was later incorporated into the DSM-III (American Psychiatric Association, 1980) as its own diagnostic entity. Modifications were made to some of its criteria across subsequent editions, in part to address its overlap with social anxiety disorder and SZPD.

AVPD and SZPD share important features, chiefly social withdrawal and isolation, though different underlying reasons have been given for these behaviors; individuals with SZPD reportedly lack a desire to form relationships, while individuals with AVPD want to form relationships but avoid doing so out of a fear of rejection, embarrassment, and shame (Winarick, 2017).

Research involving a nonclinical population provides evidence that AVPD and SZPD may share common features: sensitivity to rejection, internalized shame, attachment avoidance, and an immature defense style (Winarick, 2013). However, evidence from the same work suggests that AVPD is associated with a greater degree of rejection sensitivity and shame, higher levels of attachment anxiety, and a stronger need to belong; furthermore, AVPD may also be associated with a mature or adaptive defense style, and not only with a maladaptive defense style (Winarick, 2013). In contrast, SZPD has a strong unique association with social anhedonia, and it may also be linked to lower empathy.

This evidence lends support to the DSM-V's current categorical model, which keeps AVPD and SZPD distinct (Winarick & Bornstein, 2015). It also raises questions about the DSM-V's alternative model, in which SZPD is no longer a distinct diagnostic classification, and where anhedonia is one of the possible criteria for detachment in AVPD. More research is needed to explore the commonalities between the two disorders and clarify their differences, including the quality of needing to belong that is associated with AVPD.

Social anxiety disorder also shares key features with AVPD. A body of literature supports the argument that there is not a qualitative difference between them and that they may be part of a continuum (Reich, 2009; Tillfors & Ekselius, 2009), with AVPD as a more severe form with stronger symptoms and more pervasive impairments. However, some question this idea and highlight possible meaningful features that are more characteristic of AVPD alone and might suggest qualitative differences (Hummelen et al., 2007; Lampe, 2015). The conceptualization of AVPD and social anxiety disorder, the relationship between them, and the nature of their common features, risk factors, and potential differences continue to be investigated.

Etiology

Estimates of heritability for AVPD vary across studies, with one study calculating an estimate of 0.64 (Gjerde et al., 2012). Genetic factors may also contribute strongly to the stability of AVPD traits across different points in adulthood (Gjerde et al., 2015).

Possible childhood risk factors for AVPD include parental neglect (Johnson et al., 1999; Joyce et al., 2003), temperamental traits of anxiousness and shyness, and anxiety disorders during childhood and adolescence (Joyce et al., 2003). Explorations of childhood antecedents of AVPD include retrospective reports of relatively poor social ability in parents and other caretakers, fewer positive relationships with non-caretaking adults, and some signs of poorer social standing among peers and less involvement in activities (Rettew et al., 2003). The complex interplay of different factors, such as temperamental traits and children's interactions with parents (who have transmitted genetic information, modeled behaviors, and shaped other elements of childhood experience), warrants further study.

The second edition of the *Psychodynamic Diagnostic Manual* discusses "anxious avoidant personality organization" in childhood (Lingiardi & McWilliams, 2017, pp. 346–347), linking it to certain qualities of temperament, such as fearfulness and shyness, and an influence from caregivers with similar temperamental traits who may have difficulty managing their own anxiety and may negatively affect their child's development across different dimensions. These dimensions include the extent to which children develop an internalized sense of themselves as inadequate, the severity of their fear of embarrassment and consequent social withdrawal, the extent to which they perceive other people as threatening, and the degree to which closeness to other people can be tolerated. Throughout childhood, individuals experiencing more severe anxiety and exhibiting more marked social inhibition may experience rejection that exacerbates maladaptive behavior, thoughts, and emotions. Similar reinforcing patterns can come into play during adulthood as well.

Treatment

The major negative effects of AVPD are most apparent in social and occupational functioning. The features of AVPD that may lead to severe social isolation, a limited or nonexistent support network, and struggles with employment and educational prospects could also serve as obstacles to effective therapy.

Individuals with AVPD will thoroughly scrutinize the actions and expressions of those they come in contact with, including therapists and other clinicians. Even the thought of criticism or negative attention produces feelings of anxiety and fear, and avoidance is a protective measure. Along with experiencing a fear of rejection, individuals with AVPD may not wish to take risks that potentially expose them to failure, including engaging with the demands of therapy (Newman, 1999).

Low self-esteem and fear of rejection make interpersonal contact extremely difficult for individuals with AVPD, even if they desire affection and possibly fantasize about relationships with others. They may act in a closed-off manner and not reveal much about themselves. Some research also links their struggles with interpersonal interactions to possible difficulties in thinking about and expressing their emotional and mental states (Procacci et al., 2007; Johansen et al., 2013).

A review of the literature on psychotherapeutic treatments for AVPD (Weinbrecht et al., 2016) highlights a paucity of research on this topic; one key reason may be the close relationship between AVPD and social anxiety disorder, which has received more attention. The best types of treatment or therapeutic approaches for individuals with AVPD need to be better established.

See Also

Dependent Personality Disorder
Depressive Personality (Dysthymic Disorder)
DSM-V
Rejection Sensitivity
Social Anxiety and Social Anxiety Disorder

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Sadism and Masochism

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The terms *sadism* and *masochism* were coined by German psychiatrist Richard von Krafft-Ebing in his book *Psychopathia Sexualis*, first published in 1886. He described sadism as deriving sexual pleasure from inflicting pain on another person and named the term after the Marquis de Sade, who wrote the novel *120 Days of Sodom* in 1785 (first published in 1904 under the name *Les 120 Journées de Sodome ou l'école du Libertinage*), which included graphic descriptions of sexually motivated violence. Conversely, he described masochism as obtaining sexual pleasure from receiving pain and cruelty inflicted by another person and named this term after Leopold von Sacher-Masoch, who authored *Venus in Furs* (1870), a novel about a man who persuades a woman to use him as her slave and degrade him sexually and otherwise. Although they were originally understood as being two distinct concepts, British psychologist Havelock Ellis promoted the idea that sadism and masochism are actually closely related concepts as they describe complementary forms of behavior. This new interpretation formed the basis of the modern conception of sadomasochism (SM).

Since SM was first introduced, individuals have been attempting to accurately define this phenomenon. As it is common for people to pathologize things that they do not understand or have difficulty explaining, it is not surprising that psychology, psychiatry, and other disciplines have traditionally described SM as a symptom of psychopathology or a sexual perversion resulting from some form of mental illness or trauma, such as childhood sexual abuse. More modern research has refuted many of these theories, forcing people to re-evaluate their understanding of SM and subsequently prompting the search for a new definition.

Numerous definitions have been proposed throughout the last century; however, a commonly accepted definition of SM behavior does not currently exist. This may be due to the fact that SM comprises a wide range of sexual behaviors and is interpreted subjectively; meaning different things, to different people, at different times, and being credited with varying degrees of importance. The elements that are most consistent among definitions

include a prearranged unequal distribution of power and the giving and receiving of physical pain and/or psychological humiliation and subjugation, all of which is completely consensual and understood by all participants to be for the purpose of sexual pleasure. SM is often understood within the larger context of BDSM, an acronym used to describe a collection of interests and activities involving themes of bondage and discipline (B&D), dominance and submission (D/s), and sadism and masochism (SM), as it more accurately depicts the wide range of interests and behaviors associated with this practice.

Although SM itself is difficult to accurately define, there are a number of terms commonly associated with this practice that have more concrete definitions. A "scene" is a period of time during which two or more SM practitioners engage in a variety of predetermined behaviors for the purpose of obtaining sexual pleasure; participating in a scene is often referred to as *playing*. Scenes often include elements of role-play and may or may not involve explicit sexual activity such as genital stimulation, penetration, and/or orgasm.

The term *dominant* refers to a person who takes control within a relationship, while a *submissive* is someone who voluntarily relinquishes control to a dominant. It is important to note that not all dominants are sadists and not all submissives are masochists. These terms are more commonly used within the context of an ongoing relationship, whereas the terms "top" and "bottom" are used specifically to describe the role that each person assumes during a particular scene. Before a scene takes place, participants negotiate and establish the bottom's soft and hard limits; soft-limits are those that can be slightly pushed during the scene, as opposed to hard limits, which are boundaries that are not to be crossed. The use of a safe word, which is a preestablished term or phrase used by the bottom to indicate their current physical/emotional state, is intended to ensure that the bottom's limits are respected. One common example of this is the traffic light approach, where red means that the top should stop immediately, yellow signifies that a limit is being approached, and green is an indication to continue. The term *subspace* refers to the natural high that a bottom may experience during a scene, which is theoretically brought on by the release of endorphins in response to pain. *Aftercare* is an essential part of any SM scene that takes place when the scene has ended and involves the top comforting the bottom, showing appreciation for their strength and courage during the scene, treating any wounds that may have resulted, and providing them with food or water if necessary. Research has found that the aftercare period is often associated with increased levels of intimacy and bonding between partners.

Misunderstandings about SM and its practitioners continue to be prominent, despite the fact that the activities involved with this practice are not nearly as modern as is commonly assumed. The Kama Sutra, which is one of the earliest descriptions of human sexuality, not only compares sexual intercourse to a quarrel but also discusses a range of embraces including scratching, biting, and striking, and gives advice about where and how to administer these embraces, as well as the different sounds that will result. Other historical records have indicated that bondage, pain, and an unequal distribution of power have been a part of human sexual practices for thousands of years. More modern research has confirmed that the prevalence of SM is actually quite high, with some figures suggesting that BDSM practices are almost as common as non-BDSM sexual relations among same-sex adults. The male and female Kinsey surveys (conducted in 1948 and 1953, respectively) found that 50% of men and 54% of women reported responding at least somewhat erotically to being

bitten, and 24% of men and 12% of women experienced at least a mild erotic response to SM stories. A study by Richters et al. (2008) recruited a sample of over 19,000 Australian men and women, age 16 to 65, and found that, of the participants who were sexually active, 2.3% of men and 1.3% of women had engaged in BDSM within the year prior to the study. As of 2006, there were more than 500 groups dedicated to the practice of consensual SM in the United States alone, with members engaging in SM activities on a weekly, monthly, and/or annual basis.

The emergence of the internet has had a significant impact on the prevalence of SM behaviors, as it has provided a way for people to learn more about this topic and meet others who are interested in engaging in similar activities. For example, Fetlife.com is a social networking site for people interested in BDSM and other fetishes, which allows members to meet others with similar interests, find events in their area, as well as ask and answer questions related to their sexual interests. Between 2010 and 2013, over 1.3 million new members joined Fetlife.com, an increase of 231%.

Despite the fact that SM behaviors have existed for thousands of years and appear to be increasing in prevalence, people who engage in consensual SM are often stigmatized in a variety of life-altering ways, such as losing their jobs, failing to obtain security clearances, being denied custody of their children, or being victims of harassment and/or violence. In response to this social stigma, the National Coalition for Sexual Freedom (NCSF) was formed in 1997, with the goal of protecting the rights of those who engage in consensual BDSM by attempting to change how the general public, as well as the legal system, interprets these activities. Since that time, approximately 500 people per year have requested help from the NCSF when dealing with prejudice or prosecution related to their involvement with BDSM. The stigmatization faced by these individuals may be related to early theories that described SM as pathological, and promoted the idea that those who engaged in these behaviors must be antisocial, trying to escape their real lives, and/or using SM as an excuse for assaulting their partners.

Contrary to these early theories, current research indicates that not only are SM practitioners no more likely to suffer from psychopathology or escapist tendencies, they also tend to be emotionally, psychologically, and socially well-adjusted, possess a positive self-image, and often have higher levels of education and income compared to the general public. Research has also found that no significant differences exist between SM practitioners and the general public with regard to rates of unhappiness, anxiety, and sexual coercion (Richters et al., 2008). New theories about SM suggest that it is actually a healthy phenomenon, a form of sexual play that allows consensual adults to break-free of social norms and create novel, exciting, and intensely intimate experiences.

Individuals or couples who are interested in SM may choose to become part of a BDSM community. There are many possible reasons for choosing to become part of this community, including access to events such as SM conferences, workshops, parties, and community meetings. These events allow SM practitioners to meet and socialize with others who have similar interests, find potential partners, and discover and learn about different SM activities and techniques. BDSM communities also strive to ensure the safety of their members by providing safe play spaces, regularly discussing and implementing standards for safe practice, as well as identifying individuals who are not adhering to these standards and removing them from the community. It is important to note that BDSM communities are

not exclusively about sex. They also help members to normalize their sexual interests and behaviors, which may be stigmatized in other contexts, and provide members with a sense of kinship and a culture in which they can establish, cultivate, and/or come to terms with their identity as an SM practitioner.

To people outside of the BDSM community, it is not always clear that SM must be *consensual*, making it distinctly different from physical or sexual abuse, which by definition involves lack of consent. This misunderstanding may be due to the fact that consensual and criminal SM can, in some ways, resemble each other. For example, an unequal distribution of power, verbal degradation, and the infliction of physical pain may occur in both consensual SM and physical/sexual abuse. However, this resemblance exists *only* on the surface as there are several fundamental differences between these two types of behaviors. In addition to a lack of consent, abusive behaviors are often unpredictable, carried out with no consideration for the other person, and are often accompanied by guarantees that the behavior will not occur again. In contrast, consensual SM is a desired exchange of power that involves a great deal of communication and negotiation, promotes safety, and is used to bring about sexual pleasure and gratification for everyone involved. Additionally, in consensual SM it is actually the bottom (submissive) who retains control of the situation, as they decide what will take place during the scene, determine the limits that can be pushed and those that must be respected, and may even give specific instructions to the top (dominant) during the negotiation process.

Another important factor is that partners who engage in consensual SM draw a clear line between behaviors that are acceptable during everyday life and those that are only acceptable during a scene. Since SM is a subjective experience, where this line is drawn may be significantly different depending on the type of relationship. There are a number of different types of SM partnerships, including relationships that are casual and exist only within a particular scene, partners who play together regularly but do not have a relationship outside of this context, partners who play together regularly and also have an ongoing relationship unrelated to this practice, and relationships where partners play together regularly but also maintain their dominant and submissive roles in their day-to-day lives (often referred to as 24/7 relationships). Owing to the intensity of their shared experiences, SM partners often have increased levels of intimacy, trust, and communication, regardless of the type of relationship.

Research has found that SM practitioners are typically well-adjusted and comfortable with their sexual preferences; however, there are individuals who experience distress because of their interest in SM and who may seek help for this issue. In order to ensure that these individuals are not pathologized or stigmatized for their sexual interests, it is essential that clinicians working with this population have a thorough understanding of consensual SM and how it differs from physical/sexual abuse. Clinicians working with this population must also be cognizant of their own values, beliefs, and perceptions about SM if they are to avoid letting these personal judgments influence the treatment of their patients. It is imperative that clinicians also keep in mind that simply having an interest in SM does not mean that an individual meets the diagnostic criteria for sexual sadism or sexual masochism, as the *Diagnostic and Statistical Manual of Mental Disorders* (DSM-V) explicitly states that these should only be considered mental disorders when they cause the individual to experience significant distress or interpersonal difficulty. It has been found

that even when SM practitioners do seek help, the focus of therapy is rarely their interest in SM, but rather issues that are indirectly related to this interest, including relationship problems, shame, guilt, and pre-existing mental health issues (e.g. depression, anxiety, etc.). SM may be considered a deviant sexual interest, but the fact remains that deviant only means a departure from what is considered normal – it is not synonymous with dysfunction.

See Also

DSM-V
Personality and Forensic Psychology
Personality and Well-Being

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Emotion Regulation and Psychopathology

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Definitions of Emotion and Emotion Regulation

Writers in the area of emotion regulation typically use the term *emotion* to indicate specific, marked affective states, such as sadness or anger, whereas *affect* is used as a general or umbrella term for all psychological states that a person finds to be pleasant or unpleasant (DeSteno, Gross, & Kubzansky, 2013; Gross, 2015). Gross (2015) suggests that the general construct of affect includes emotions, stress responses (psychological and physiological responses to stressful events), and moods (lower intensity, more pervasive, psychological reactions that persist over a greater period of time than emotions). Broadly speaking, the term *emotion regulation* refers to a variety of strategies that people may employ to manage their own feelings or the feelings of others. Gross (2015) defines emotion regulation as "the activation of a goal to influence the emotion trajectory," i.e. actively increasing or decreasing emotions. Emotion regulation may be internal (changing one's own emotions) or external (changing the emotions of someone else, such as when a parent helps a child calm down) (Gross, 2015).

Emotion regulation may take many forms. DeSteno and colleagues (2013) describe emotion regulation strategies that include "situation selection" (placing oneself in situations that will elicit more pleasant emotions), "situation modification" (making changes to one's surroundings to improve mood), "attentional deployment" (shifting one's attentional focus towards less distressing or more positive-emotion inducing stimuli), "cognitive change" (modifying one's thoughts to improve mood), and "response modulation" (directly altering physical or behavioral aspects of an emotional response). According to this model, a person facing an unpleasant work environment might change jobs or transfer to another department (situation selection), redecorate the office to make being at work pleasant (situation modification), intentionally ignore problematic co-workers (attentional deployment), reframe a boss's criticism as feedback that will help a career trajectory in the long-term (cognitive change), or practice relaxation and

deep-breathing techniques to facilitate relaxation when becoming annoyed by co-workers (response modulation). While most of these examples involve a person using emotion regulation strategies to increase positive emotions and decrease negative emotions, emotion regulation may also be used to increase negative emotions (e.g., helping an assault victim become angry with his/her attacker rather than engaging in self-blame) or to decrease positive emotions (e.g., suppressing a case of the "giggles" when situationally inappropriate) (Gross, 2015).

Development of Emotion Regulation

Emotion regulation is typically understood as a fairly stable trait, which emerges in childhood. The bulk of the development of emotion regulation appears to occur in the first few years of life. Individual patterns of emotion regulation emerge and stabilize by age two, with minimal changes in the years that follow (Eisenberg, Spinrad, & Eggum, 2010). Early antecedents of the ability to regulate emotion have been measured even in infancy, expressed as temperamental tendencies to express emotion and recover from distress. Rothbart (1981) was among the earliest researchers to quantify temperament in the first year of life. She defined infant temperament as individual differences on two dimensions – reactivity and self-regulation. Later research has demonstrated that temperamental tendencies toward reactivity may be seen in early infancy and that self-control, including emotion regulation, develops as infants become capable of increasingly complex behaviors (Fox & Calkins, 2003). Fox and Calkins (2003) assert that, by the beginning of toddlerhood, the ability to direct attention and motor control are sufficiently developed to permit a child to employ basic emotion regulation strategies. In addition, considerable research suggests that early temperamental tendencies to display negative emotional reactions, in particular, are associated with self-control strategies later in infancy (for a review, see Fox & Calkins, 2003).

While temperamental tendencies to self-regulate are typically understood to be innate, considerable evidence also exists that the development of emotion regulation may be impacted by external factors, with parenting being the most salient external factor. Research on maternal emotion expression and emotion relation in young children reveals that when mothers express more positive vs. negative emotion, their young children are more likely to exhibit self-soothing (Bariola, Gullone, & Hughes, 2011). Based on a review of the extant literature, Morris, Silk, Steinberg, Myers, and Robinson (2007) posit that families influence children's developing emotion regulation via three mechanisms: modeling of emotion regulation practices by family members, direct parenting regarding emotion, and the general emotional climate of the family. The authors also point to mounting evidence that family influence on emotion regulation abilities may be an important mediator or the relationship between family context and psychosocial outcomes (Morris et al., 2007). However, the authors are careful to point out that the vast majority of this research has emphasized the mother–child relationship and that other familial relationships are under studied.

Emotion Regulation and Mental Health Problems

Deficits in emotion regulation have been found in a wide variety of psychological disorders in both children and adults (for reviews see Jazaieri, Urry, & Gross, 2013; Berking & Wupperman, 2012). Deficits in emotion regulation abilities have typically been linked to externalizing problems in children (Eisenberg et al., 2010), presumably because the deficits result in difficult inhibiting inappropriate external expressions of negative affect. For example, emotion regulation problems have been found to be associated with ADHD diagnosis, and it has been suggested that children who have emotion regulation problems may be at increased risk for ADHD as well as commonly co-morbid conditions such as oppositional defiant disorder, conduct disorder, anxiety, and depression (Steinberg & Drabick, 2015). Problems with emotion regulation have also been found to be associated with adolescent substance abuse (Poon, Turpyn, Hansen, Jacangelo, & Chaplin, 2015).

In adults, reliance on problematic emotion regulation strategies has been found to be more common in those diagnosed with specifically with eating disorders, including anorexia nervosa, bulimia nervosa, and binge-eating disorder (Brockmeyer, Skunde, Wu, Bresslein, Rudofsky, Herzog, & Friederich, 2013; Oldershaw, Lavender, Sallis, Stahl, & Schmidt, 2015). Problems with emotion regulation have also been found to be related to the development of PTSD following exposure to a potential traumatic event (Lilly & London, 2015). For example, in a sample of trauma-exposed refugees, Nickerson, Bryant, Schnyder, Schick, Mueller, and Morina (2015) found that emotion dysregulation mediated the relationship between environmental risk and psychological symptoms. Similarly, for victims of physical, sexual, or emotional abuse perpetrated by someone close to the victim, emotion regulation difficulties were found to mediate the relationships between trauma exposure and trauma, depression, and anxiety symptom expression (Goldsmith, Chesney, Heath, & Barlow, 2013).

Emotion regulation difficulties have also been found to be related to particular aspects of psychological disorders. For example, Tsypes, Aldao, and Mennin (2013) found that emotion regulation problems mediated the relationship between symptoms of generalized anxiety disorder and sleep disturbances. Specific behaviors associated with mental health problems, particularly self-harm, disordered eating, and substance abuse, have been found to be associated with deficits in emotion regulation (Buckholdt, Parra, Anestis, Lavender, Jobe-Shields, Tull, & Gratz, 2015). Examining the relationships between specific emotion regulation strategies and mental health diagnoses, D'Avanzato, Joormann, Seimer, and Gotlib (2013) found that participants with diagnoses of social anxiety disorder or major depressive disorder tended to be more likely to employ rumination or suppression of emotional expression and less likely to employ cognitive reappraisal as emotion regulation strategies.

Recently, psychotherapies have begun to address deficits in emotion regulation as a mechanism to improve mental health. Most notably, dialectical behavior therapy (Neacsiu, Bohus, & Linehan, 2014) was developed to address the deficits in emotion regulation that are understood to be central to borderline personality disorder and associated self-harm. A central component of DBT and other psychotherapies targeting improved ability to regulate emotion is the practice of "mindfulness," which helps the client learn to recognize and tolerate emotions as a precursor to learning to manage emotional responses (for a review, see Greenberg & Pascual-Leone, 2006).

See Also

Anxiety
Authoritarianism
Borderline Personality Disorder
Coping
Posttraumatic Stress Disorders
Temperament, Personality Correlates of

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Eating Disorders

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Eating disorders (EDs) are complex psychiatric disorders characterized by disturbances in an individual's eating and related behaviors, resulting in psychological distress, health concerns, and reduced quality of life. These disorders can arise from many combinations of psychological, biological, and social risk factors and can lead to potentially life-threatening behaviors and thought patterns surrounding one's eating and weight. Individual variability of symptomology, diagnostic crossover, and difficulty distinguishing disordered eating from normal-range eating behaviors, often make diagnosing and treating EDs very difficult. While the Diagnostic and *Statistical Manual of Mental Disorders,* fifth edition (DSM-V), outlines some of the more common presentations of ED symptoms, (which are described in greater detail below), individual risk factors and various treatment methods that have been utilized for varying EDs are also reviewed.

Anorexia Nervosa

AN is characterized within the DSM-V as: (1) persistent restriction of energy intake resulting in significantly low body weight; (2) intense fear of gaining weight or becoming heavy, or persistent behaviors that interfere with necessary weight gain; and (3) disturbance in the way one's body weight or shape is experienced. Two subtypes may also be specified within the diagnosis of AN when appropriate: (1) Restricting, describing presentations of symptoms in which only caloric restriction and/or excessive exercise are present or (2) binge/purge (AN-BP), describing presentations where binge eating and purging behaviors (e.g. self-induced vomiting, laxative misuse) are also present, concurrent with the first three diagnostic AN criteria. Any patient presenting with binge/purge symptoms who is also underweight will be given a diagnosis of AN instead of bulimia nervosa, described below.

Bulimia Nervosa

Bulimia nervosa (BN) is characterized in the DSM-V as: (1) recurrent episodes of binge eating, (2) recurrent, inappropriate compensatory behavior in order to prevent weight gain such as: self-induced vomiting; misuse of laxatives, diuretics, or other medications; restricting caloric intake; or excessive exercise, (3) self-evaluation being unduly influenced by body shape and weight. Episodes of binge eating under the BN diagnosis are characterized as "Eating, in a discrete period of time (e.g. 2 hours), an amount of food that is definitely larger than most people would eat during a similar period of time under similar circumstances and having a sense of lack of control over the eating during the episode." For a diagnosis of BN to be made, these behaviors must be occurring, on average, at least once a week for at least three months.

Binge-Eating Disorder

Binge-eating disorder (BED) was added as its own categorical ED in DSM-V. Similar to BN, the first defining feature of BED is recurrent episodes of binge eating during which an individual consumes, in a discrete time period (e.g. 2 hours), an amount that is "definitely larger" than what most people typically consume in a similar span of time under similar circumstances. However, unlike bulimia nervosa, BED episodes of binge eating are not regularly followed by the use of inappropriate compensatory behaviors.

For a diagnosis of BED to be made, binge eating episodes must (a) occur on average at least once a week for three months, (b) occur in the absence of recurrent compensatory behaviors, (c) be associated with marked distress and a sense of "loss of control" while eating, and (d) have at least three of the following features: eating much more rapidly than normal; eating until uncomfortably full; eating in the absence of physical hunger; eating alone due to embarrassment about quantity of food one is consuming; and/or feeling disgusted with oneself, excessive guilt, or depressed after binging.

Other Feeding and Eating Disorders

Other feeding and eating disorders (OSFED) is an umbrella term for several other combinations of symptoms characteristic of EDs that cause clinically significant distress or impairment but do not meet the diagnostic criteria for AN, BN, or BED. Some presentations falling under this "catch-all" term have been clinically specified and include, but are not limited to, night eating syndrome (characterized by a delayed circadian pattern of food intake), atypical AN (all criteria for AN are met except that the individual is within or above normal range), purging disorder (recurrent purging (e.g. self-induced vomiting, laxative, or diuretic misuse) to control weight or shape in the absence of binge eating), and subthreshold BN or BED.

Risk Factors in Individual ED Development

Genetics

Genetics research to date has found moderate-to-high heritability of AN, BN, and BED and disordered eating symptoms in both males and females during adolescence and young adulthood. Other studies have similarly concluded that eating disorders have an increased prevalence in families that have biological relatives with eating disorders in comparison to the normative population. Non-overlapping environmental effects, such as exposure to the thin ideal and psychiatric morbidity, can explain the remaining variability in the development of an eating disorder. These environmental factors (e.g. family characteristics, peer influences, and socio-cultural traits) are explained in more detail below.

Personality Traits

Certain personality characteristics such as neuroticism and negative emotionality have been shown to predispose an individual to the development and maintenance of an eating disorder by impacting a person's typical pattern of thinking, emotions, and behavior across situations and various environmental situations. Perfectionism, described as having high standards of oneself and an overly critical self-evaluation, appears to be directly related to the onset of anorectic, but not bulimic, symptoms. However, the interaction between perfectionism and other intrapersonal factors such as low self-esteem, body dissatisfaction, and a drive for thinness, can increase an individual's risk for developing all eating disorder symptoms. Impulsivity prospectively predicts the development of binge eating and purging symptoms found in BN, BED, and AN-binge/purge type EDs. Negative urgency, a fact of impulsivity trait describing the tendency to engage in rash decision making and action when in distress appears to be the most predictive facet of impulsivity for the development of binge eating and purging symptoms.

Neurocognitive Processes

Certain deficits in neurocognitive processes have been seen at higher rates in ED populations. Cognitive flexibility, an individual's ability to shift between mental sets, multiple tasks, and operations, is impaired in individuals with AN and BN, but not in individuals with BED. Impaired inhibitory control, the ability to suppress an automatic response in favor of a less automatic one, is commonly found in individuals who engage in binge eating and/or purging.

Interpersonal Relations

Family members and peers can be strong social influences on the development of EDs. Living in an critical, hostile, and emotionally dismissive family environment is a potent risk factor for the development of an ED. Furthermore, family members (often mothers) may serve as role models for eating and body-image criticism for their children. Fathers

who tend to be authoritative and controlling can contribute to both the onset and the maintenance of eating disorder symptoms in their child. Research to date also suggests that sibling relationships may be the strongest models of weight concerns and muscular shape misperceptions within the immediate family environment.

Peer influence on the development of ED is not as clearly defined as is the familial influence on ED development. This is primarily due to the broadness and pervasiveness that peer influence has on individuals. The peer group is usually the main source of eating-related attitudes (e.g. thin ideal) and behaviors (e.g. dieting), often leading toward disordered eating patterns. In particular, those individuals who already suffer from disordered eating behaviors or thoughts and attitudes related to ED pathology appear to experience a worsening of ED symptoms if they are reinforced by their peers. Similarly, surrounding oneself with peers who have similar body-related beliefs and attitudes may lead an individual to adopt these same attitudes.

Socio-Cultural Influences

EDs were traditionally believed to primarily affect Caucasian adolescent and young adult women from high-income, industrialized Europe and North America. In these societies, food can be found in an abundance and there is a strongly held thin ideal. With the recent industrialization, modernization, and globalization of an increasing number of Asian and Arab countries, the prevalence of EDs has dramatically increased in these non-Western cultures. For example, the introduction of Westernized television in Fijian families' households had detrimental consequences for their adolescent daughters' eating attitudes and behaviors due to exposure to Western beauty norms.

Among the North American minority cultures, African American and Hispanic American populations are showing increased rates of BN and BED, and not AN, which can be explained by the larger body ideal present in these societies. Increased body-image concerns and higher rates of EDs in men are also being observed due to a societal shift in beauty and body ideals for males.

A Multi-Faceted Approach

The development of EDs is multifactorial and complex, including both intra- and interpersonal factors. In general, the strongest risk factors for both BN and AN are gender, weight and shape concerns, and a group of variables focusing on negative affect, neuroticism, and general psychiatric morbidity. Body dissatisfaction and weight and shape concerns are the strongest risk factors for the development of an eating disorder. No single factor can be identified as the primary causal influence on the development of an ED.

Treatments

Treatments for EDs require the clinician(s) involved to address a variety of specific, complex needs based on the presentation and severity of the diagnosed disorder. At present, the most effective approaches have included some form of psychotherapy combined with

increased attention to the patient's medical and nutritional needs in order to help the individual begin working toward more adaptive eating behaviors.

The treatment of AN typically involves three overarching components: (1) restoring body weight, (2) treating the psychological components related to the eating disorder, and (3) reducing and/or eliminating behaviors or thoughts that lead to maladaptive eating and weight loss. Currently, adults with AN show poor responses to psychological treatments, with most specialized treatments still showing relatively high relapse rates, patient drop-out, and/or minimal effect sizes within the RCTs that have been conducted. The current standard approaches to outpatient treatments for this disorder include psychodynamic and interpersonal therapies and manual-based approaches such as enhanced cognitive behavioral therapy, although no treatment appears to be significantly more effective than other treatment models. Family-based therapy, which utilizes the parents as a primary resource in the treatment process for adolescents struggling with AN, is an effective treatment for adolescents with AN, particularly within the first three years of the disorder's onset.

The current gold-standard approach to treating BN in an outpatient setting is cognitive behavioral therapy (CBT)/enhanced cognitive behavioral therapy (CBT-E), developed by Christopher Fairburn in 1981 and enhanced in 2008. CBT and CBT-E are designed to help patients regulate their maladaptive eating behaviors while identifying and working to change the key mechanisms maintaining the individual's disordered eating cycles. This model has been somewhat successful for BN patients; however, a large percentage experience only partial success with CBT or CBT-E alone. Other psychotherapy models that are currently used in comparison models or in conjunction with CBT for binge eating and BN patients are acceptance and commitment therapy, dialectical behavioral therapy, and interpersonal therapies. However, no other treatments have surpassed the efficacy of CBT/CBT-E. Researchers have also begun to implement CBT treatments and interpersonal Psychotherapy treatments for BED due to the empirical efficacy of these models for treating BN. Thus far, both models have found relatively similar results in the management of both short-term and long-term BED symptoms.

To highlight, a large component of what kind of treatment an ED patient receives is contingent upon the severity and persistence of the individual's ED symptoms. As previously stated, EDs are dangerous psychiatric disorders that can lead to significant medical complications and have particularly high mortality rates for individuals who suffer from them. Despite continued attempts at an outpatient level of care or who present with severe medical complications (e.g. dangerously low weight, significant malnutrition, electrolyte imbalances) those who have been struggling consistently may need to be hospitalized to address these concerns in addition to treating their other ED symptoms. In addition, various, more intense levels of care (e.g. residential treatment, day treatment, and intensive outpatient treatment), can be utilized for patients whose symptoms are not responding to standard weekly treatment approaches.

The wide variation of symptoms included amongst ED presentations typically requires the involvement of multiple treatment providers to effectively manage all aspects of the individual's well-being. These providers may include, but are not limited to: an individual therapist, a medical doctor (for management of physical symptoms); a nutritionist or registered dietician (to assist with eating regulation); and/or a psychiatrist (for medication management). Certain medications, primarily antidepressants (e.g. Prozac), have been prescribed, particularly

to patients struggling with BN, to help reduce symptoms thought to be correlated with the ED (e.g. anxiety, depression). Psychopharmacological success varies substantially and, due to high comorbidity rates of other psychiatric disorders among ED patients, it is difficult to differentiate symptoms and accurately prescribe appropriate medications.

Current Research

While there are current, "gold-standard" methods for treating EDs, the overall outcomes for many of these treatment models remain low, especially when compared to the treatment of other psychiatric disorders. Research is needed to improve the field's understanding of maintenance factors of EDs that may be efficacious to target within treatment models and to develop a better understanding of the biological and neurological contributors to the development and maintenance of EDs. Recent advancements in neuroimaging procedures are allowing psychologists to look at potential differences in neurological structures and functions occurring in individuals with EDs and various ED symptomologies, which could potentially assist in the development of increased efficacious treatments that address these deficits.

See Also

Addiction and Addictive Personality
Emotion Regulation and Psychopathology
Obsessive-Compulsive Personality Disorder

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Neuropsychiatric Disorders

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Neuropsychiatric disorders are specific, clinically recognized conditions in which an individual's thoughts, perceptions, emotions and/or overt behavior cause suffering and interfere with the individual's daily functioning. What differentiates a "neuropsychiatric disorder" from the more common term "mental disorder" is not the disorder itself but rather the clinical emphasis. The *Diagnostic and Statistical Manual for Mental Disorders* fifth edition (DSM-V) recognizes over 450 mental disorders. These diagnoses are syndrome-based, that is, based on sets of behavioral symptoms, not with reference to mechanism or underlying brain pathology. For many mental disorders, the neural substrate is not (yet) known nor considered relevant for treatment. These disorders are not (yet) in the purview of neuropsychiatry and neuropsychiatric research. In contrast, neuropsychiatric disorders can be considered the subset of mental disorders for which there is some knowledge about the underlying brain pathology and most importantly, this pathology is relevant to treatment. Some of the most common and most studied neuropsychiatric disorders include schizophrenia, major depressive disorder and bipolar disorder. These disorders, by definition, have profound effects on an individual's expression of personality – negatively affecting comfort and willingness to engage in social interactions, attitudes about the self, mood, and disposition (Karsten et al., 2012; Kendler & Neale, 1993). For example, flat affect and lack of interest in social interactions are common so-called "negative" symptoms in schizophrenia. These patients also experience "positive" symptoms such as delusions, hallucinations, and racing thoughts. In chronic patients, both the negative and positive symptoms might be considered related to personality, because their presence can lead to a pervasive change in an individual's behavior and self-perceptions. Neuropsychiatric disorders have tremendous individual differences both in their behavioral expression and in their neural underpinnings. For example, in schizophrenia there is considerable heterogeneity in the presence of positive symptoms. Similarly, a major depression diagnosis captures a spectrum of behavior where individuals can vary greatly in their expression of depressive thoughts, actions and reported suffering. Historically, individual differences have been seen as reflecting variability around

categorical distinctions (e.g. the distinction between the subtypes of schizophrenia, or the distinction between schizophrenia and bipolar disorder). However, recent evidence from longitudinal epidemiological studies has challenged this basic assumption in support of the view that individual differences in symptoms reflect variability along a single unitary factor, the so-called "p-factor" or "psychopathology factor" that can explain variability in symptoms across diagnostic categories.

Individual Differences in Neuropsychiatry: Diagnostic and Practical Issues

Understanding the nature of inter-individual differences in symptom expression is a fundamental challenge in neuropsychiatry. In other fields of medicine, diagnoses need not be made purely based on symptoms as such diagnoses tend not to be reliable or stable. Unfortunately, however, in neuropsychiatry, clinicians often have little else to rely on. In essence, the symptoms and severities that are reported by individuals *are the disorder* and thus individual differences in symptom expression strongly determine diagnosis and treatment. As a result, a tremendous amount of research and debate in neuropsychiatry is focused on how individual differences in symptom expression are to be understood. Categorical models of mental disorders use the presence or absence of symptoms to cluster individuals into diagnostic categories and subcategories. For instance, in schizophrenia, clinicians using a categorical model might assign a patient to a diagnosis of schizophrenia of the disorganized type based on the presence or absence of incomprehensible speech or "word salad." In contrast, dimensional models use symptom severity, and not simply the presence or absence of symptoms, to scale a patients' disorder along several different dimensions. The same patient that might have been diagnosed with schizophrenia of the disorganized type according to a categorical framework, will now not get assigned to the disorganized subtype of schizophrenia but instead show high on disorganized symptoms. Dimensional models, in theory, should lead to more reliable and stable diagnoses and are certainly more appropriate for disorders such as personality disorders, for which patients present with behaviors that are just more extreme or severe versions of typical behaviors. These factors, in part, were the motivation for the movement from the DSM-IV's categorical models to DSM-V, which emphasizes the dimensional aspects of many mental and neuropsychiatric disorders.

   Nevertheless, even with the use of dimensional or even hybrid models, there are still fundamental challenges to understanding how symptoms relate to the underlying disorder, or indeed to understanding what the fundamental nature of neuropsychiatric disorders are. For instance, it has long been observed that symptom severity is associated with serial and nonserial comorbidity. That is, when an individual has severe symptoms they tend to get diagnosed with multiple diagnoses or move from one diagnosis to another sequentially. When researchers examined the factor structure in a very large set of longitudinal data tracking diagnoses across mental disorders, what they found was that a single factor could explain vulnerability of patients to a core set of symptoms (Caspi et al., 2014). This factor, called the p-factor (for psychopathology factor), indicates potentially that there is a single axis, rather than different dimensions or categories, that drives individual differences in

symptoms. The presence of a single underlying psychopathology factor might also have important implications for understanding the neural substrate underlying neuropsychiatric disorders as well.

The Neural Substrate of Neuropsychiatric Disorders

In the past 20 years, with the advent of neuroimaging methodologies such as positron emission tomography (PET) and magnetic resonance imaging (MRI) being used in clinical and translational research, we have learned much about the alterations in brain structure, brain function, and brain chemistry in patients with schizophrenia, major depression and bipolar disorder. Perhaps surprisingly, one broad conclusion is that the brain alterations seen in neuropsychiatric disorder are relatively subtle, especially compared to the neuropathology seen in neurodegenerative diseases such as Alzheimer's dementia, Huntington's disease, and Parkinson's disease. In the latter cases, brain pathology such as hippocampal and medial temporal lobe atrophy (Alzheimer's dementia), basal ganglia atrophy (Huntington's disease) and atrophy to the midbrain and substantia nigra (Parkinson's disease) can clearly be detected using structural MRI by a neurologist or radiologist and often can be used as a means of making a probable diagnosis. In most neuropsychiatric conditions however, patients' structural MRI scan will often look unremarkable from a radiological perspective. Studies using *functional* MRI (fMRI), a method that tracks brain activity via changes in blood oxygen, tend to be more sensitive. However, activity differences between patients and controls tend to be small and inter-individual differences in activity sometimes but not always correlate with symptoms or discriminate between diagnoses (Stephan et al., 2016). Thus, these studies seem to indicate that relatively subtle alterations in the structure and/or activity of individual brain regions underlie the symptoms of neuropsychiatric disorders.

Recently however, an alternative hypothesis has emerged that suggests neuropsychiatric disorders come about not through functional or structural alterations in individual brain regions but by higher-order alterations in the functional interactions amongst brain regions. These interactions, referred to as functional connectivity, can be measured *in vivo* using MRI, and using analyses based on a branch of applied math known as graph-theory, researchers have been able to examine the large-scale network properties of the healthy and patient brain in great detail. Such studies often find widespread alterations in the organization of brain functional connectivity with neuropsychiatric disorders. For instance, in schizophrenia, where the bulk of this research has been done, a growing number of studies find marked and specific alterations in functional connectivity. Studies find reduced functional connectivity at the overall whole network level (weaker connections), reductions in the clustering of connections between regions (propensity for regions to form sub-networks with shared connections), decreases in the "centrality" (how well connected a region is to every other region) of key hub regions in the brain, and in general more randomness in the wiring of functional connectivity (Crossley et al., 2014; Fornito, Zalesky, & Breakspear, 2015). Importantly, these network alterations have been shown to be related to behavioral symptoms (Fornito et al., 2015) in schizophrenia and other disorders. Most intriguing, from an individual difference perspective, is the emergence of the notion of the "connectional fingerprint." A connectional fingerprint, much as one's fingerprint or genetic

code uniquely specifies one's identity, could potentially specify one's unique profile of functional and structural brain connectivity (Edwin Thanarajah et al., 2016; Meyer-Lindenberg, 2009). However, a connectional fingerprint would actually carry information beyond identity – it would provide quantitative information about the functional and structural organization of an individual's brain. With research linking connectional fingerprints to symptoms, there is great potential for them to help individualize treatment and disentangle the complex alterations of brain–behavior relationships that underlie neuropsychiatric disorders.

Issues Associated with Personality in Neuropsychiatric Disorders

The set of mental disorders most associated with aberrant aspects of personality are the personality disorders. The DSM-V (as well as previous editions) classify these disorders as the set of mental disorders where an individual's thoughts, self-perceptions, perceptions of others, and actions toward others deviate significantly from the individual's culture and adversely affect an individual's daily functioning. Often these individuals rate at the extremes on Big 5 measures (Karsten et al., 2012). The DSM-V distinguishes 10 different types of personality disorders, once again, based on symptoms. Very little is known about underlying neuropathology in personality disorders. In the case of borderline personality disorder, there is some evidence of hippocampal atrophy (or just smaller hippocampal volumes) linked to experiences of childhood trauma. Interestingly, this is not unlike what is seen in patients with post-traumatic stress disorder (PTSD) (Brambilla et al., 2004). Clearly, there is need for more research in identifying stable neuropathology in personality disorders. Currently, although patients with personality disorders often receive medications to treat symptoms (typically because of major depression or other comorbidity), these disorders are not typically considered neuropsychiatric.

Issues of personality, however, are not restricted to just those diagnosed with a personality disorder. Indeed, clinical studies provide evidence that although personality measures remain valid and reliable in neuropsychiatric groups, common measures, such as the NEO-V, tend to fluctuate along with the disorder and along with treatment. For example, in major depressive disorder, patients tend to score higher in neuroticism and lower in extroversion, conscientiousness, and openness during a depressive episode (Costa, Bagby, Herbst, & McCrae, 2005) and some of these changes, particularly in regard to neuroticism, may persist after the depressive episode (Kendler & Neale, 1993). In other disorders such as schizophrenia, personality measures are also affected. For instance, patients with schizophrenia tend to show higher levels of neuroticism and lower levels of openness, agreeableness, extraversion, and conscientiousness compared to healthy control subjects (Camisa et al., 2005). Interestingly, recent large epidemiological studies tend to show a high-level of comorbidity of personality disorders in neuropsychiatric populations. One study estimates the prevalence of personality disorder with neuropsychiatric populations to be as high as one-third of patients (Zimmerman, Rothschild, & Chelminski, 2005).

See Also

Biological Models of Personality – Psychophysiological
Biological Models of Personality – Neurological
Psychophysiological Assessment (ECG, EMG, EDA, GSR)

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Posttraumatic Stress Disorder

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Posttraumatic stress disorder (PTSD) is a syndrome that may emerge following a potentially traumatic event (PTE) in which a person witnesses actual or possible death, serious injury, or sexual violence. The *Diagnostic and Statistical Manual of Mental Disorders*, 5th edition (DSM-5, 2013) groups PTSD symptoms into four categories: intrusion symptoms (e.g. flashbacks or traumatic nightmares), avoidance symptoms (e.g. avoiding people or places related to the traumatic event), cognitive and mood symptoms (e.g. not being able to remember some or all of the traumatic event, self-blame, or blunting of positive emotions), and arousal and reactivity symptoms (e.g. increased startle response or difficulty concentrating).

Symptoms and Diagnosis

To meet DSM-5 criteria for a diagnosis of PTSD, a person must have directly experienced a PTE, witnessed the PTE happening to someone else, learned that a PTE happened to someone close to the person, or have had repeated or extreme exposure to unpleasant details of the traumatic events. Media exposure to PTEs are specifically excluded, unless the exposure occurs as art of the person's work. Thus, someone repeatedly viewing violence images in the course of their work, such as might be the case for a person investigating violent crimes, would be eligible for diagnosis. Prior to DSM-5, it was required that the traumatic event result in feelings of fear, helplessness, or horror, but this stipulation was removed. In addition to exposure to a PTE, diagnosis requires that a person exhibit symptoms which must include at least one intrusion symptom, one avoidance symptom, two cognitive or mood symptoms, and two arousal and reactivity symptoms. These symptoms must persist for at least one month, must cause significant distress or impairment, and cannot be due to the effects of medication or substance use (American Psychiatric Association, 2013).

A major change to the diagnosis of PTSD in DSM-5 has been the introduction of distinct diagnostic criteria for children under 7 years old. Exposure to a PTE for a child may include direct involvement, witnessing the PTE (excluding media exposure), or learning that a PTE happened to a parent or caregiver. Symptoms for children are slightly different from those listed for adults and are grouped into only three categories: intrusion symptoms (e.g. play reenactment of the PTE, nightmares which may or may not be explicitly linked to the PTE), avoidance/mood/cognitive symptoms (e.g. constriction of play, social withdrawal), and arousal and reactivity symptoms (e.g. irritability, aggression, or temper tantrums). As with adults, children must exhibit symptoms for at least one month, experience distress or impairment, and cannot be due to medical or substance use (American Psychiatric Association, 2013).

PTSD and the HPA Axis

In addition to the behavioral symptoms described above, exposure to trauma and the subsequent development of PTSD have been shown to be associated with changes to the functioning of the hypothalamic-pituitary-adrenal (HPA) axis. While, the specific nature of these changes is still not fully understood (de Kloet, Vermetten, Geuze, Kavelaars, Heijnen, & Westenberg, 2006), researchers concur that there appear to be changes in HPA-axis functioning that are apparent both in day-to-day living as well in response to a direct stressor such as a trauma reminder (de Kloet et al., 2006).

Prevalence Rates and Group Differences in Prevalence

Lifetime prevalence of PTSD in the United States is estimated at 8.7% and annual prevalence is estimated at 3.5%, with lower prevalence rates reported for Europe, and many Asian, African, and Latin American countries (American Psychiatric Association, 2013). Within the United States, research suggests that prevalence rates of PTSD vary across racial and ethnic groups as do the nature of the traumas that results in PTSD across groups. For example, data from a national survey found that lifetime prevalence rates of PTSD were higher for African Americans and lower for Asians (Roberts, Gilman, Breslau, Breslau, & Koenen, 2011). The same study (Roberts et al., 2011) found that Whites were generally more likely to experience any type of trauma, but that risk for exposure to child maltreatment was higher among African Americans and Hispanic Americans and risk for war-related trauma was higher among Asians, African American men, and Hispanic women. PTSD is often associated with other mental health problems. For example, a survey of women found that the majority (87.5%) of people who met criteria for PTSD had at least one additional diagnosis and that PTSD was significantly correlated with many other disorders (Perkonigg, Kessler, Storz, & Wittchen, 2000).

Perhaps the most commonly described group difference in prevalence rates of PTSD is the differences in trauma exposure and rates of diagnosis for men and women. Over the past decade, studies have indicated that men are more likely than women to be exposed to almost every type traumatic event (Blain, Galovski, & Robinson, 2010; Irish et al., 2011; Solomon, Gelkopf, & Bleich, 2005), with the exception of sexual and interpersonal violence (Blain, Galovski, & Robinson, 2010). Despite having lower rates of trauma exposure, women have

demonstrated a greater risk for developing PTSD following a traumatic event (Blain et al., 2010; Gil, Weinberg, Or-Chen, & Harel, 2015; Irish, Fischer, Fallon, Spoonster, Sledjeski, et al., 2011) and greater risk for PTSD to advance into a chronic condition (Blain et al., 2010).

Studies have indicated that the disparity between genders in the development of PTSD may be attributed to a difference in the perception of trauma and self-efficacy (Blain et al., 2010; Solomon et al., 2005). Women have been found to be more likely than men to perceive comparable traumatic events as more threatening and evaluate their ability to manage the traumatic event as ineffective (Irish et al., 2011; Solomon et al., 2005), which is consistent with findings that negative perceptions are associated with an increased risk for PTSD (Irish et al., 2011). Variations in coping mechanisms have also been attributed to gender differences in the development of PTSD. Women typically use an internalized approach to coping (Blain et al., 2010; Solomon et al., 2005), which involves focusing on their thoughts and emotions associated with the traumatic event (Solomon et al., 2005). Conversely, men typically use an externalized approach to coping, which involves focusing on the problem by recognizing and directly addressing stressors (Solomon et al., 2005).

Studies have also revealed gender differences in symptom profiles. Women often report more internalizing symptoms such as anxiety and depression, whereas men often report more externalizing symptoms such a substance abuse, irritability, impulsivity, and aggressive behavior (Blain et al., 2010; Solomon et al., 2005). Additionally, women commonly report more posttraumatic symptoms (Blain et al., 2010; Irish et al., 2011; Solomon et al., 2005) and higher levels of distress (Irish et al., 2011). Gender differences in symptom profiles have been attributed to social gender-role expectations. For example, the possibility of social stigma may be deterring males from reporting or seeking treatment for socially feminized symptoms such as depression (Solomon et al., 2005).

Risk and Protective Factors for the Development of PTSD

One important aspect of how individuals respond to PTEs appears to be an individual's cognitive response to a PTE. For example, Feldner, Lewis, Leen-Feldner, Schnurr, & Zvolensky (2006) found that anxiety sensitivity, a propensity to respond with further anxiety to symptoms associated with anxiety, moderated the relationship between traumatic events and PTSD symptoms. Similarly, an examination of personal resilience characteristics revealed that control, commitment, goal-orientation, self-esteem, adaptability, social skills, and humor were associated with greater physical and mental health, as well as lower PTSD symptom severity among survivors of violent trauma (Connor, Davidson, & Lee, 2003). In fact, research seems to suggest that the importance of dispositions toward certain cognitive responses as a potential risk factor in the wake of a PTE may extend beyond PTSD to other potential psychological sequelae. For example, Calvete, Estévez, & Corral (2007) found that cognitive schemas mediated the link between partner violence and depression.

Protective factors for the development of PTSD appear to include the presence of social support and active coping strategies. Generally, social support has been found to have both direct effects on mental health (Coker et al., 2002). Glass, Perrin, Campbell, & Soeken (2007) found that tangible social support moderated the relationship between being a victim of partner violence and PTSD symptoms. In addition, active coping with PTEs seems to be related to more positive outcomes. Reviere, Farber, Twomey, Okun, Jackson, Zanville,

& Kaslow (2007) found that, among a sample of low-income, African American women, qualitative research documented that women who attempted suicide were more likely to display less adaptive coping strategies focused on accommodating abusers, as compared to women who did not attempt suicide, whose coping strategies focused on leaving the relationships or avoiding harm.

Treatment

Fortunately, several psychotherapy treatments have received empirical support (for a review, see Bisson & Andrew, 2007). Treatments include exposure therapy (Foa, Rothbaum, Riggs, & Murdock, 1991) and stress inoculation treatment (Foa et al., 1991). Empirical support also exists for the use of eye movement desensitization and reprocessing (Bisson & Andrew, 2005). In addition to these psychotherapies, evidence suggests that selective serotonin reuptake inhibitors may be useful in treatment of PTSD (Albucher & Liberzon, 2002).

See Also

Anxiety
DSM-V
Individual Differences in Coping with Stress

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Individual Differences and Sleep Disorders

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Sleep is a physiological process necessary for refreshing and reinvigorating both mind and body. Sleep disorders may be diagnosed if sleep is consistently scant, excessive, fragmented, or fails to be restorative. Sleep disorders are commonly associated with physiological issues (e.g. pain, pulmonary disease, acid reflux) and neurological issues (e.g. brain injury or disease). Underlying sleep disorders may result in reports of feeling fatigued, irritable, or depressed. Poor concentration, memory problems, and general problems with cognitive or physical performance are also common complaints (Greenwalk & Sabini, 2009). Individual differences in sleep schedules depend on age, lifestyle, and individual needs for sleep based on biological, environmental, and behavioral factors (D'Cruz, & Vaughn, 2009). Sleep phase, amount of actual sleep (rather than time in bed), and biological-environmental interactions are important in diagnosing and treating sleep disorders.

Types of Sleep Disorders and Causes

Sleep Phase

The term *sleep phase* describes the time period when one is typically asleep. Sleep phase is determined by chronobiologic factors (biological cycles or rhythms) and is influenced by environment and behavior. Physiological urges that determine the onset of the sleep phase can be one source of disordered sleep. Common factors contributing to sleep phase disorders are jet lag (80% of business travelers report sleep disturbances), shift work, and blindness (due to inability to use light to set circadian rhythms; Fernandez, Eisenschenk, & Okun, 2009). *Delayed sleep phase syndrome* and *advanced sleep phase syndrome* are both sleep disorders that impact the time of day when fatigue and the urge to sleep are experienced. Advanced sleep onset syndrome is characterized by a natural urge for sleep in the early evening, followed by awakening very early in the morning. Conversely, the hallmark of delayed sleep phase syndrome is an inclination to delay sleep onset to the early morning

hours and sleep until late morning. An *irregular sleep-wake pattern* is described as largely disorganized sleep periods that do not follow a structured or synchronized routine. Irregular sleep patterns are normal for infants during the first few weeks of life. However, irregular sleep-wake patterns in children or adults signal a sleep disorder, often due to central nervous system disease (D'Cruz, & Vaughn, 2016).

Sleep Amount

Amount of sleep refers to the quantity of sleep an individual gets on a daily basis. Chronically getting too much or too little sleep can cause sleep disorders. *Inadequate sleep hygiene* is a disorder related to persistent failure to obtain adequate amounts of sleep (D'Cruz, & Vaughn, 2016). Individual characteristics that impact the quantity of sleep needed include age, activity level, and health (Hirshkowitz et al., 2015). In general terms, the amount of sleep required varies developmentally and incrementally decreases with age. On average, infants need 12 to 15 hours of sleep, toddlers need 11 to 14 hours of sleep, preschool aged children need 10 to 13 hours of sleep, school-aged children need 9 to 11 hours of sleep, teenagers need 8 to 10 hours of sleep, young adults and adults need an average of 7 to 9 hours of sleep, and older adults need an average of 7 to 8 hours of sleep health (Hirshkowitz et al., 2015). Inadequate sleep hygiene includes symptoms of fatigue and excessive daytime sleepiness, which diminish when an adequate amount of sleep is achieved.

Hypersomnia is a class of sleep disorders characterized by an overabundance of sleep. Narcolepsy is a primary sleep disorder that occurs when the brain loses its ability to regulate sleep-wake cycles and can mimic symptoms of inadequate sleep hygiene (D'Cruz & Vaughn, 2016). Narcolepsy, however, does not improve with adequate amounts of sleep and is a neurobiological disorder with hereditary characteristics. Narcolepsy causes symptoms of daytime tiredness. Sudden decreases in muscle tone that result in falls (cataplexy), sleep paralysis, and hallucinations may also be present (D'Cruz, & Vaughn, 2016).

Insomnia is a class of sleep disorders characterized by too little sleep (D'Cruz, & Vaughn, 2016) and related to central nervous system arousal. Insomnias are among the most commonly reported sleep disorders, affecting 10–15% of the population (Greenwalk & Sabini, 2016). Of reported insomnias, *psychophysiological insomnia* (anxiety-related sleep disruption often regarding sleep amount and quality) is the most common and accounts for 15% of all insomnias. *Sleep state misperception* (perceived delayed sleep onset and low sleep amount despite objective evidence of normal sleep onset and amount) is also prevalent and accounts for 5% of all reported insomnias (Fernandez, Eisenschenk, & Okun, 2009). Sleep insomnias, such as periodic limbic movement disorder (PLMD), have genetic dispositions and fragment sleep, significantly decreasing the sense of overall restfulness (D'Cruz, & Vaughn, 2016).

Sleep Quality

Sleep quality refers to the restfulness of sleep. Sleep disorders that cause abnormal sleep state transitions, including frequent arousal during sleep, lead to sleep fragmentation and a disruption of sleep structure (e.g. stages). Attempts to increase sleep amount do not provide

relief from symptoms of this class of disorders. An example of a sleep quality disorder is sleep apnea, a disturbance or restfulness caused by sleep-related respiratory disturbances (D'Cruz, & Vaughn, 2016). Sleep apnea impacts 1–2% of the general population (Fernandez, Eisenschenk, & Okun, 2009).

Biological Factors

Biological factors also cause sleep disorders. Predisposition for a sleep disorder may be rooted in genetic make-up. Women are more prone to sleep disorders including chronic insomnia (D'Cruz, & Vaughn, 2016). Sleep disorders with high familial influence include narcolepsy, obstructed sleep apnea (OSA), restless leg syndrome, insomnias, arousal disorders, enuresis, sleep terrors, and fatal familial insomnia (Fernandez, Eisenschenk, & Okun, 2009). Growth and life phases also impact susceptibility to sleep disorders, with older adults being among the most susceptible (Greenwalk & Sabini, 2016). Enuresis in children causes alterations in sleep patterns and impacts the susceptibility of sleep disorders. The incidence of nighttime enuresis is 30% of 4-year-olds, 10% of 6-year-olds, 3% of 12-year-olds, and 1–2% of 18-year-olds (Fernandez, Eisenschenk, & Okun, 2009). Children are also susceptible to sleep walking that can impact quality of sleep and disruption of the sleep-wake cycle. Of children in the general population, 10–30% engage in sleep walking (Fernandez, Eisenschenk, & Okun, 2009). Teenagers are also susceptible to difficulties with sleep phase disorders, specifically delayed sleep phase syndrome (D'Cruz, & Vaughn, 2016). Pregnancy is another factor contributing to the development of sleep disorders, with 11% of pregnant women experiencing restless leg syndrome (Fernandez, Eisenschenk, & Okun, 2009).

Environmental and Behavioral Factors

Environmental factors, including overcrowded housing, inadequate sleeping areas, noisy environments, and lack of adequate cooling or heating, increase susceptibility to sleep disorders. Use of electronics can impede sleep onset and light or noise from computer screens, cell phones, video games, and televisions may contribute to a predisposition to sleep disorders (D'Cruz, & Vaughn, 2016).

Other behaviors and routines also increase the likelihood of developing sleep disorders (D'Cruz, & Vaughn, 2016), including consumption of caffeine before bedtime, engaging in high stimulating activities, such as going to the gym within three hours of bedtime, and inconsistent sleep patterns (Greenwalk & Sabini, 2016).

Mental Health

Mental health disorders such as depression and anxiety, may contribute to development of sleep disorders. Mental health disorders may have hereditary and biological roots, or may be rooted in environmental and behavioral factors. Veterans suffering from posttraumatic stress disorder (PTSD) are among those with an increased likelihood of developing sleep disorders. Sleep disturbance is the most reported PTSD-related symptom among veterans (King et al., 2015).

Diagnosis

Sleep disorders are diagnosed via a detailed history of symptoms, family history of sleep disorders, and a thorough physical examination. Sleep diaries are frequently used to determine factors related to sleep quality and duration. Questionnaires facilitate accurate diagnoses (D'Cruz, & Vaughn, 2016). Polysomnography and hypnograms are also utilized in the diagnosis of sleep disorders. These objective diagnostic tests provide sleep data, including lights-out time, lights-on time, total sleep time, sleep latency (amount of time to fall asleep), REM latency (amount of time to enter REM sleep), wake after sleep onset, and sleep efficiency (Boghez & Mandruta, 2015). These data are useful in determining the presence and type of sleep disorder.

Treatment and Management

Treatment and management of sleep disorders often require multidisciplinary teams. Treatment must be individualized to account for individual characteristics, as well as specific features and causes of the disorder. Often, medical interventions are needed, including the use of respiratory aids or, in some cases, surgery. Sleep hygiene, medication, and psychotherapy are also used to manage sleep disorders (Greenwalk & Sabini, 2016). If another medical or psychological disorder is causing the sleep disorder, that disorder must also be treated in order to improve sleep and alleviate symptoms long term.

Sleep Hygiene

Sleep hygiene is a relatively nonintrusive method to treat and manage sleep disorders (Greenwalk & Sabini, 2016). Sleep hygiene includes stimulus reduction and behavioral techniques to modify maladaptive sleep patterns. This includes interventions such as avoiding caffeine, nicotine, and alcohol at night, exercising regularly in the afternoon but not within three hours of bedtime, avoiding naps, assuring accurate light and noise levels in sleep locations, getting up and engaging in a relaxing or boring activity when having difficulty sleeping, maintaining consistent bed and wake times, and avoiding going to bed hungry or eating heavy meals before bed (Greenwalk & Sabini, 2016).

Pharmacology

There are currently two classes of medications approved by the United States Food and Drug Administration (FDA) for treatment of insomnia related sleep disorders. This includes benzodiazepine receptor agonists and selective melatonin receptor agonists (Greenwalk & Sabini, 2016). Stimulant-based medications may be prescribed for treatment of daytime sleepiness and fatigue (D'Cruz, & Vaughn, 2016). Over-the-counter sleep aids, such as antihistamines, are readily available and may improve sleep onset and maintenance. However, there is little evidence supporting long-term sleep treatment with these medications. Herbs and home remedies, such as lavender, chamomile, and melatonin, are sometimes used as sleep aids despite few controlled studies supporting their effectiveness (Greenwalk & Sabini, 2016).

Psychotherapy

Behavior therapy can help to establish effective sleep routines and maintain structured sleeping habits. Behavioral therapy is also useful for practicing relaxation strategies and establishing calming pre-bedtime routines (D'Cruz, & Vaughn, 2016). Environmental therapy is useful in determining ideal sleep environments, including minimization of distractions and stimuli.

See Also

Biological Models of Personality – Psychophysiologica
Health and Personality
Posttraumatic Stress Disorders
Trauma

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Pain and Personality

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Chronic Pain: The Biopsychosocial Model

The *biopsychosocial model* is the most promising approach for conceptualizing the role that personality plays in chronic pain. Indeed, biopsychosocial interactive factors provide important information to more comprehensively assess and treat chronic pain (e.g. Gatchel, Peng, Peters, Fuchs, & Turk, 2007). To better understand the complex interactions between chronic pain and personality, the biopsychosocial model takes into account how core characteristics may predispose an individual to the onset of certain disorders, or provide resilience towards occurrence (Gatchel & Weisberg, 2000). The role of the environment can also either "buffer" or instigate psychopathology.

Does a Pain-Prone Personality Exist?

As earlier noted by Gatchel and Weisberg (2000), personality characteristics have not shown any direct effect on the acquisition of chronic pain. Therefore, the statement that *there is no one consistent "pain-prone personality syndrome"* (p. xi) is still true today. While it would be a much easier assessment to simply determine where a patient scored on a personality test, there is no evidence to support the existence of a primary or preexisting set of personality characteristics that are associated with the onset of pain. An individual's personality and psychosocial characteristics can, and frequently do, impact features of chronic pain, such as its severity and treatment (e.g., Cano-García, et al., 2013; Gatchel & Weisberg, 2000).

Non-Pathological Personality Characteristics

The goal of many comprehensive pain intervention programs is to manage rather than to cure pain (Gatchel, McGeary, McGeary, & Lippe, 2014). Thus, patients who implement more adaptive coping techniques are more likely to better manage pain and disability. Coping refers to an individual's specific cognitive and behavioral efforts to resolve and manage problems caused by chronic pain (Gatchel & Weisberg, 2000). Perceived control, locus of control, level of extraversion/introversion and perceived optimism are some of the personality characteristics that determine an individual's ability to successfully cope with stressors such as chronic pain (Gatchel & Weisberg, 2000; Taylor, 2015).

Perceived Control

As appropriately noted by Taylor (2015), perceived control (or the person's general sense of control over a particular situation or symptoms such as pain) can significantly decrease the emotional distress and disability associated with pain. For example, Mizener, Thomas, and Billings (1988) reported that, among patients successfully treated for "migraine headaches," there was a significant correlation between perceived control over psychological activity (via biofeedback training) and a reduction in headache activity. Overall, clinical research has revealed the important role of perceived control in reducing pain (Gatchel, et al., 2007).

Locus of Control

Related to perceived control is the concept of locus of control (LOC). LOC is considered internal if patients hold the belief that they have some degree of control over pain. Contrary to an internal LOC, individuals who show an external LOC would be more inclined to believe their pain is controlled by outside forces (e.g. surgical intervention) (Cano-García, et al., 2013). Individuals who express a stronger internal LOC utilize more adaptive coping strategies that result in less self-reported pain intensity, functional impairment, and emotional distress, relative to individuals who hold a primarily external LOC (Hamed, Raafat, Nasreldin, Abolmagd, & El Awar, 2012).

Introversion and Extroversion

It is not immediately obvious as to how an individual's level of extraversion-introversion might play a role in chronic pain, but extensive research outcomes have shown numerous relationships. Extraverted patients are more likely to complain about pain but show a higher pain tolerance than more introverted patients (Gatchel & Weisberg, 2000; Park, Lee, Sohn, Eom, & Sohn, 2014). This phenomenon may be attributed to extraverts having lower amounts of the excitatory neurotransmitters (e.g., acetylcholine) than introverts, resulting in introverts having an overstimulation of sensory impulses that occur in the experience of pain (Lester, 1989). Additionally, extraverts exhibit a lower psychosocial response to pain, resulting in fewer feelings of sadness (Park, et al., 2014). Furthermore, introverted patients are at higher risk for social isolation and depression, which are associated with greater pain sensitivity (Gatchel & Weisberg, 2000). It has also been suggested that extraversion-introversion should be viewed as consisting of several covariates that influence pain reactivity and prognosis (e.g. social isolation) (Gatchel & Weisberg, 2000).

Optimism

Perceived optimism affects many health outcomes, such as increasing positive symptom reports, predicting recovery time after surgery, and reducing the toll that chronic pain can inflict on everyday activity (Powell et al., 2012; Taylor, 2015). For instance, Boselie and colleagues (2014) found that reinforcing optimism to a group of participants attenuated the deteriorating effect of pain on executive-task performance. Indeed, restoring executive-task performance in patients with chronic pain may reduce the negative effect of chronic pain on daily functioning. Optimism can also affect the onset of chronic pain. For example, Powell and colleagues (2012) found that presurgery levels of optimism independently predicted pain intensity and chronicity at four months. The findings of Powell et al. (2012) support the implementation of psychosocial interventions to reduce the risk of pain becoming chronic. Such studies reflect a growing emphasis on optimism in the chronic pain literature.

Pathological Personality Characteristics, Chronic Pain, Treatment Implications

As with nonpathological personality characteristics, pathological characteristics impact an individual's ability to cope with chronic pain and related stressors. Fear-avoidance beliefs, negative affect, and pathological personality characteristics are some of the factors that impact an individual's ability to cope with pain (Arts et al., 2015).

Fear Avoidance and Pain Catastrophizing

The *Fear-Avoidance Model* of chronic pain has historically been a dominant model, integral to the understanding of how chronic pain is established and maintained (Wong et al., 2014). As reviewed by Gatchel and Neblett (2015), *pain catastrophizing* is a precursor to fear-avoidance behavior. Indeed, if one begins to interpret pain as especially harmful and threatening, and then begins to catastrophize about it (e.g. "I worry all the time about whether the pain will end."), then a negative cascade of emotions and cognitions about the actual or anticipated pain is likely to occur. This may result in overmonitoring and hypervigilance of bodily sensations, which can lower pain threshold. Thus, the *Fear-Avoidance Model* is based on the interaction of pain catastrophizing (the negative appraisal of pain) and the development of pain-related fears, which promote avoidance behaviors (Gatchel & Neblett, 2015).

Negative Affect

Pathological personality factors interact with environmental variables to mediate the perpetuation of pain, and the transition from acute to chronic pain (Brox, Storheim, Holm, Friis, & Reikeras, 2005; Campbell, Clauw, & Keefe, 2003). Thus, identifying pathological personality factors related to chronic pain may lead to the development of interventions specifically targeted at chronic pain prevention. Correspondingly, depression

is moderately related to pain indices and shares biological pathways (such as mono-amine neurotransmitters) with pain (Blair, Robinson, Katon, & Kroeuke, 2003). Marsala and colleagues (2015) lend support to the assertion that common structures (i.e. limbic areas) and neuronal pathways are involved in the onset of both depression and pain. The association between depression and physical pain again highlights the importance of adopting a biopsychosocial approach to fully understand, prevent, and treat chronic pain.

Personality Disorders

Individuals with a personality disorder (PD) often experience impairment in social and occupational functioning and are unable to cope with major stressors such as chronic pain (Trull & Kearney, 2012). Indeed, the presence of a PD or cluster of pathological personality traits can impair the coping ability of chronic pain patients. This finding is highly salient for chronic pain populations, with past research demonstrating a robust relationship between chronic pain conditions and personality disorders (PDs) (Conrad, Wegener, Geiser, & Kleiman, 2013). High rates of comorbidity between PDs and other disorders (e.g., depression), are also important to consider when treating chronic pain (Gatchel, et al., 2014).

Borderline Personality Disorder

The types of PDs that have been found to be associated with chronic pain vary for a number of reasons. Conrad and colleagues (2007) observed that paranoid personality disorder (PPD) and borderline personality disorder (BPD) were the two most commonly reported PDs among a sample of chronic pain patients, whereas Fischer-Kern and colleagues (2011) reported obsessive-compulsive disorder and BPD as the two most diagnosed PDs in a sample of patients with chronic pain. The high suicide rate associated with BPD (approximately 3–10% of individuals with BPD commit suicide by age 30), and the propensity for self-harm, have caused an explosion of research aimed at investigating the complex relationship between BPD and pain (Trull & Kearney, 2012).

Conclusion

Patients suffering from chronic pain report an array of problems (Gatchel, et al., 2007). Acceptance of the biopsychosocial model of pain has resulted in a proliferation of interdisciplinary treatments that address individual patient needs. Interdisciplinary pain management programs typically consist of physical and/or psychosocial interventions that are intended to decrease disability and pathological factors associated with pain, as well as to increase coping capacity and quality of life (Van der Maas et al., 2015). Interdisciplinary treatment can include a number of different modalities, arranged in a number of different combinations according to individual needs and biopsychosocial characteristics (e.g. personality traits).

See Also

Borderline Personality Disorder
Extraversion
Locus of Control, Personality Correlates of
Neuropsychiatric Disorders
Personality and Health

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Personality and Sexual Dysfunctions

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Psychologists have long sought a link between various personality characteristics and a propensity toward sexual dysfunctions, particularly those dysfunctions having a psychological (rather than organic) basis. Such links might not only help predict vulnerability toward particular sexual problems but also provide insight into the problem and suggest particular treatment strategies. Although moderate success has been achieved in drawing associations between personality and sexual function, simple, strong, and clear etiological relationships have, for the most part, eluded psychologists. In this entry, we first identify the sexual dysfunctions, then elaborate on "personality" as a psychological construct, providing a framework for the present discussion.

Sexual dysfunctions are disorders involving the disruption of the sexual response cycle. Traditionally, the sexual response cycle involves three elements: desire, arousal, and orgasm, with dysfunctions tied to any one or more of these phases. Classification of these dysfunctions using the *Diagnostic and Statistical Manual of Mental Disorders*, fifth edition (DSM-V) is differentiated by sex. Thus, male hypoactive sexual desire disorder, erectile dysfunction, premature ejaculation, and inhibited ejaculation denote male sexual dysfunctions whereas female sexual interest/arousal disorder, female orgasmic disorder, and genito-pelvic pain/penetration disorder denote female sexual dysfunctions. Biological, psychological, and relationship factors can affect both the onset and maintenance of these dysfunctions. Personality characteristics appear to be one among many psychological factors that serve as risk factors for sexual dysfunction.

Personality refers the enduring pattern of emotions, thoughts, and behaviors that an individual expresses in his/her daily interactions. These patterns interact with the immediate emotional, cognitive, and general psychological demands of the moment. Personality traits are descriptive in nature – providing a unified conceptualization of a set of psychobehavioral characteristics that typically occur in concert with one another. In this entry, three personality-based topics are discussed: personality traits, personality-related factors, and psychopathologies. However, important to note is that personality characteristics themselves do not determine sexual problems; rather the constellation of attitudes,

emotions, thoughts, and behaviors that comprise a specific personality descriptor may place an individual at greater risk for a sexual problem.

Personality Traits

A number of personality traits appear to have a fairly straightforward relationship to sexual arousal, pleasure, and dysfunction. Although such traits may contribute to sexual enjoyment or sexual problems, they typically represent one of many factors impinging on sexual response at a given time for a given individual with a given partner. That is, certain personality characteristics, combined with relational and situational factors, may contribute to or detract from the sexual experience. As such, these traits typically play a secondary, perhaps exacerbating or intensifying, role in sexual response and enjoyment – they are seldom viewed as a primary cause for a sexual problem; rather, an individual having such dispositions may bring specific vulnerabilities and/or strengths to situations involving sexual intimacy.

Negative trait affect is characterized by an individual's heavy focus on negative emotions (e.g. anger, anxiety, and guilt); positive trait affect is characterized by an individual's focus on positive emotions (happiness, enthusiasm). Trait affectivity has been implicated in sexual dysfunction. For example, women with higher positive trait affect report higher levels of sexual desire, arousal, and satisfaction. And the pleasure derived from satisfying sexual experiences may further enhance their sexual desire and arousal. In contrast, negative trait affect is associated with problems surrounding sexual functioning, including vaginismus (sexual pain). Likewise in men, negative trait affect is correlated with diminished arousal and erectile functioning. Thus, the general tendency to experience life negatively may well affect one's perception and evaluation of sexual encounters, thereby negatively affecting various components of sexual response.

Related to negative trait affect, neuroticism is a personality trait characterized by nervousness, fear, worry, and emotional instability. High levels of neuroticism have been associated with male sexual dysfunctions. Neurotic tendencies may prompt negative feelings and thoughts; therefore, when sexual issues arise (such as premature ejaculation), a man higher in neuroticism is likely to evaluate himself negatively. In women, greater emotional instability is correlated with increased risk of orgasm difficulties. Specifically, women who fluctuate between positive and negative emotional states may come to associate sex with negative emotionality which, over time, may be manifested in a sexual difficulty. Such patterns of negativity may affect sexual performance by setting up negative expectations (and negative self-efficacy) in future encounters.

Hostility, irritability, and aggressiveness are personality traits implicated in both male and female sexual dysfunction. In women, hostility has been related to sexual pain and irritability, with ensuing problems in reaching orgasm. Additionally, anger is known to interfere with women's sexual desire and arousal, opening the possibility of arousal/desire disorders. In men, agitation appears to be connected to premature ejaculation, although a clear explanation of an underlying process is lacking. But in general, such personality traits may lead to altered perceptions towards sex which become self-perpetuating: the predisposition serves as a risk factor for the sexual problem, while the sexual failure strengthens the predisposition.

Extraversion-introversion (E-I) may play a role in sexual enjoyment and dysfunction. E-I is a characteristic that denotes the source of the person's psychological, emotional, and (even) physical energy: extraverts gain energy from being around others while introverts gain energy from time spent alone. Introverts may also find social interactions emotionally draining. Therefore, it stands that difficulty experiencing orgasm has been associated with increased levels of introversion. Although introversion in and of itself does not lead to sexual problems, an individual may come to avoid sex due to its emotionally taxing nature. In contrast, extraversion is positively correlated with male sexual functioning, possibly from the fact that such men may feel energized by their interactions with other people, including their partner.

Openness, a trait related to willingness to try new experiences and a general curiosity about life, has been implicated in sexual dysfunction in both men and women. Low openness has been related to orgasmic problems in women and erectile/arousal problems and inhibited ejaculation in men. A low level of openness may result in negative attitudes about sex or may limit an individual's willingness to expand his/her sexual attitudes and behaviors.

Other personality traits may affect sexual functioning, but their impact is less clear and/ or consistent. For example, the relationship between conscientiousness (carefulness and thoughtfulness) and agreeableness (warmth and empathy) on the one hand, and sexual dysfunction on the other, is mixed. Generally, they may contribute to the enjoyment of sexual experiences for some; and those who are low in these dimensions may feel less connected with their partner and therefore more vulnerable to a sexual problem.

Personality-Related Factors

Personality-related factors represent predominating psycho-behavioral patterns within an individual, but they are not seen as enduring and consistent as traits – that is, they represent perceptions and thought patterns that are more likely to be influenced by situation and experience. However, these factors are often affected by overlying personality characteristics. For example, schemas – processes of thought that organize and create relationships between information – appear to be influenced by personality. The intersection of personality characteristics and specific schemas may be responsible for sexual problems in some men and women. For example, women who typically experience higher levels of incompetence, loneliness, and fear are more likely to have desire deficits, orgasm difficulties, and vaginismus than other women. One way in which schemas may act is by altering sexual attitudes, which thus affect sexual functioning. Some such attitudes may stem from religious, cultural, or generational views (e.g. association of sexual pleasure with guilt) and have strong potential to affect desire and arousal, particularly in women.

Self-esteem (the evaluation of one's worth) and self-efficacy (a person's confidence of being able to achieve a desired end point) are important factors contributing to sexual response and dysfunction. Self-esteem is often connected to self-consciousness, including awareness of one's body (body image). Owing to the emphasis on attractiveness at both the cultural and interpersonal levels, low body image, self-esteem, and self-efficacy may interact in ways that interfere with healthy sexual response. For example, in women, negative body beliefs and low body image are related to higher incidences of orgasmic dysfunction; in men, negative body image, low self-esteem, and high self-consciousness are related to erectile dysfunction.

Anxiety, a transient state distinguished from the longer-lasting anxiety *disorders* (see below), is often tied to demands to perform sexually. Partnered sexual activity, particularly early on in relationship, has both evaluative and consequence components: each person may be concerned about his/her partner's expectations and perceptions, and each may worry that if performance is not "adequate," then not only does embarrassment and shame follow, but the partner's evaluation of the situation may have implications for the relationship itself. Although such anxiety tends to be specific to the sexual situation, vulnerability to feelings of high anxiety may be an inherent characteristics among some individuals. For example, a high level of anxiety may interfere with the normal erectile process in men and both arousal and orgasmic response in women.

Psychopathologies

Psychopathologies refer to mental disorders that lead to significant impairment in carrying out one's daily activities, including interactions with other people. Although considered distinct from personality, they have the potential to affect personality, and personality has the potential to increase the likelihood of specific psychological disorders – that is, psychopathologies and personality variables are often interconnected. Furthermore, some psychopathologies are known to affect sexual functioning.

Anxiety disorders, as with situational anxiety discussed above, may lead to sexual problems. For example, trait anxiety and nervousness have been related to orgasmic dysfunction and sexual pain in women, with the latter likely acting reciprocally on orgasmic function. Anxiety and general vulnerability are also found to be higher in men with sexual dysfunction than non dysfunctional men. The experience of anxiety surrounding sexual activity may shape sexual attitudes and expectations that exacerbate existing or developing sexual difficulties.

Similar to trait-related anxiety, social phobia, characterized by intense anxiety elicited from social situations, is moderately related to premature ejaculation. Such individuals may respond negatively to the overwhelming pressures (both cultural and partner-based) to perform adequately during sex.

Depressive disorders are strongly related to sexual problems. These disorders manifest as depressed or sad mood, sleep dysfunction, anhedonia, fatigue, and suicidal thoughts. Depression has been related to problems occurring in all phases of the sexual response cycle – desire, arousal, and orgasm – in both men and women. Depression may impact sexual functioning by reducing pleasure, lowering self-efficacy, and inhibiting positive emotions.

General Interpretation and Conclusion

Broadly speaking, sexual response represents a balance between excitatory and inhibitory processes. To the extent that certain personality characteristics or psychopathologies interfere with or mitigate arousal/excitatory processes, they will tend to affect sexual response negatively. Thus, negative affect-anxiety, strong introversion, high hostility, and low openness have the potential to decrease sexual enjoyment and pleasure, as well as to increase the likelihood of sexual problems. In many cases, a negative predisposition may represent both/

either a risk factor, increasing the probability of a particular outcome, and/or a consequence, with the sexual problem intensifying an already existing condition or predisposition.

At the same time, certain positive characteristics are likely to enhance excitement, sexual enjoyment, and satisfaction. These positive experiences increase positive attitudes toward sexuality and lead to positive expectations and self-efficacy surrounding sexual intimacy. Persons experiencing sexual problems may often benefit from counseling that helps them change cognitive frameworks and/or alter emotional tendencies counterproductive to rewarding sexual experiences. However, in those instances in which significant psychopathology exists, treatment of the psychological disorder precedes treatment of the sexual problem, as the sexual problem is typically secondary to the psychological problem.

Although research on the intersection between personality and sexual dysfunction has yielded some insights into sexual dysfunction, future research will not only need to operationalize personality variables with greater precision, but also better define the underlying psychological and physiological processes through which the one affects the other.

See Also

Anxiety
Gender Differences in Perceived Personality Traits of Men and Women
Neuroticism, Personality Correlates of
Positive and Negative Affective States, Assessment of
Self-efficacy
Self-esteem, Expressions of
Sensation Seeking

Further Reading

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Paranoid Personality Disorder

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Definition

Paranoid personality disorder (PPD) is one of three Cluster A personality disorders (schizoid and schizotypal personality disorders being the others) characterized by pervasive distrust and suspiciousness of the motives of others (DSM-V, 2013). Classified under specific personality disorders in the ICD-10 (World Health Organization, 2016), an individual qualifies for a diagnosis with PPD when the criteria for general personality disorder are met, plus at least three of the following:

1) Excessive sensitivity to setbacks;
2) Persistent unforgiveness of insults;
3) Suspiciousness and pervasive distrust, misinterpreting the actions of others as malevolent and hostile;
4) Recurrent suspicions, without justification, regarding the sexual fidelity of the spouse or sexual partner;
5) Combative and tenacious sense of personal rights;
6) Excessive self-importance and self-reference;
7) Preoccupation with unfounded conspiratorial explanations of events happening to the individual and in the world at large.

The diagnosis includes expansive paranoid, fanatic, querulant, and sensitive paranoid personality (disorder) but importantly, excludes paranoia as a delusional and psychotic disorder as seen in schizophrenia. In summary, PPD a nonpsychotic disorder wherein the diagnosis is based on one's maladaptive personality traits, not that of a mood or thought disorder, with the key distinction from schizophrenia being that individuals with PPD do not suffer from hallucinations.

Epidemiological studies in the last three decades have reported prevalence rates of 2.3–4.4% for PPD and found that PPD is often comorbid with alcohol and substance use disorders. Research examining PPD across cultures is limited. One meta-analytic study

(McGilloway, Hall, Lee, & Bhui, 2010) has documented the prevalence rates for personality disorders in different ethnic groups showing comparable results between Asians, Hispanics, and Whites and more variation between Blacks and Whites, although effects may be largely attributable to the heterogeneity in the methodology reflecting the need for more cross-cultural research on PPDs in general.

In terms of heritability, a large Norwegian study of 1,386 twins (Kendler et al., 2006) found PPD to be moderately heritable (28%) and to share a portion of its genetic risks with other Cluster A personality disorders (43%). No evidence from this study supported shared environmental or sex effects for these PDs. Similarly, another morbidity study found higher prevalence rates of PPD in males than in females; however, this difference was not statistically significant (Singleton et al., 2000).

Paranoia specifically, has been found to vary along a continuum of severity; affecting patients on the severe end of the spectrum as well as 10–15% of young adults in the general population. More recent developmental studies of children and adolescents have also extended certain adult models of paranoia to childhood suspiciousness, replicating the positively skewed distribution of many children reporting few suspicions, while few children report many suspicions (Wong, Freeman, & Hughes, 2014; Zhou et al., 2018). Even though more work needs to be conducted to clarify the unfounded nature of these beliefs, there is initial evidence favoring a 'social explanation' to childhood paranoia and that examining suspicions developmentally may be beneficial in understanding the etiology of paranoia, as well as its other symptoms (Wong, 2015; Wong & Raine, 2018). Factor analytic studies have demonstrated that paranoid ideations overlap with other forms of delusions, although they are also found to be distinct and hence worth studying in their own right.

Assessment

There are many diagnostic issues with PPD. While a certain level of suspiciousness may be evolutionarily advantageous and considered a normal response to stress, it is a clinicians' job to verify that a patient presenting with paranoid thinking is distinct from patients with other personality disorders such as depression and anxiety, schizophrenia, and other psychotic disorders. This has important implications on the prognosis, treatment, and even criminal offending as PPD is often implicated with aggression and violence (Carroll & McInerney, 2015). Thus, it is important for clinicians to not just diagnose the patient with the presence or absence of symptoms, but to work with the patient to understand the content of their suspicions.

The distinction between PPD and delusional disorders is particularly challenging, especially when individuals who lack trust in others are less likely to seek help. Currently, assessments of PPD are based on self-report questionnaires such as the Paranoia scale of the Personality Assessment Inventory (PAI; Morey, 2007), structured interviews such as the Structured Clinical Interview for DSM Disorders (SCID-5-PD; APA, 2015) and the International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10; WHO, 2016). More recently, brief screening interviews for clinical samples such as the Standardized Assessment of Personality – Abbreviated Scale (SAPAS;

Moran et al., 2003) has also been found to moderately correlate with traditional assessments of personality disorders. However, the initial step to seeking help is still an ongoing challenge for many individuals suffering from PPD.

One prevailing difficulty in paranoia research is determining whether the ideation is unfounded, which until recently, this question had remained unresolved. To begin addressing this gap, moment-to-moment virtual reality (VR) paradigms enabling individuals suffering from phobias and paranoia to interact with benign avatars in controlled virtual environments followed by pre- and post-experiment psychosocial questionnaires and interviews have shown promising results. Specifically, in paranoia research, any paranoid responses are recorded as unfounded since VR environments are programmed to be neutral. Empirical studies to date have begun to support VR exposure as an effective research and clinical tool to understanding and improving the lives of individuals with mental health disorders.

Causes

The causes of PPD are complex and consideration of both social and cognitive factors have made substantial progress in research on paranoia. This body of evidence stems primarily from studies of patients with persecutory delusions and young adults with high levels of paranoid ideations.

The *Attribution-Self-Representation Cycle* (Bentall et al., 2001) provides a social understanding of paranoia and states that an individual's attribution to agents and events is intricately linked with their representation of the self, which, in turn, shapes future attributions. The individual constructs beliefs in order to cope with discrepancies between how others view them and how they would like to be viewed (primarily to defend against their self-esteem). Studies have shown that individuals with low self-esteem tend to make internal attributions for negative events, whereas individuals with high self-esteem and low depressive symptoms tend to attribute success to internal factors and negative events to external causes. Whether attributional style functions to defend against low self-esteem or whether it is specific to persecutory delusions or other types of delusions has been contested, as intervention studies showing improvement in persecutory delusions through therapy demonstrated unchanged levels of depression and self-esteem. This therefore suggests that persecutory delusions do not serve the function of defense but perhaps as a more general reflection of the individual's emotions. More recent work from Bentall et al. (2012) has also demonstrated a dose-response relationship between each increase in symptoms of early childhood adversity (e.g. physical/sexual abuse, victimization, separation from the home) and the risk of paranoia. In particular, controlling for comorbid hallucinations, growing up under institutional care was found to increase the odds for paranoia by 11 times. This lends support to the case that early childhood adversity may initially seem "rational," and may predispose an individual to paranoid thinking and schizophrenia-like symptoms (Wong & Raine, 2019).

Contrasting the social perspective is the *Threat Anticipation Model* (Freeman et al., 2002), which highlights the interaction between affective reasoning and anomalous experiences as a trigger for delusional experiences. In this model, major stressors, insomnia, and drug

abuse can "trigger" both abnormal internal experiences (cognitive biases) and external events (discordant negative social experiences). The theory also accounts for existing levels of emotion (e.g. anxiety, self-belief, and cultural schemas) and reasoning (e.g. confirmation bias and reasoning bias) during paranoia as factors that may fuel the individual's behavior, such as rumination and withdrawal from social interactions. The interplay between these factors results in persecutory threat beliefs. Studies of patients with persecutory delusions have demonstrated that patients with delusions are more likely than nondelusional individuals to respond in a biased manner (i.e. jump-to-conclusions).

Treatment

Currently, there are no established treatment recommendation for PPD. Cognitive behavioral therapy (CBT), typically provided weekly for at least six months, has been shown to be effective for patients with delusions and hallucinations. Approximately 20% of patients with persistent delusions respond well to the treatment and another 40% showed improvements. Although CBT may be less effective for individuals distressed by their paranoid experiences, recovery time has been shortened in those with acute psychosis and relapse rates reduced in few cases. Patients with cognitive deficits and the lack of insight into their illness are not precluded from CBT treatment. Recent randomized controlled experimental studies have demonstrated that patients may relearn "fearful" situations under the neutral conditions of a virtual social environment. Compared to patients with mere VR exposure, patients in the VR cognitive therapy environment who were taught strategies to challenge their fears in benign social environments reported 22% and 19.6% reduction in delusions of conviction and real-world distress, respectively (Freeman et al., 2016). Although there are just a handful of RCTs using VR, cognitive therapy through VR paradigms show promise and may prove effective in treating paranoia (d=1.3) and perhaps, other mental illnesses (e.g. anxiety) (Freeman et al., 2017). There are also no FDA approved medications to treat this disorder.

Conclusions

The inherent beliefs of distrust in others can be both exhausting and debilitating for individuals with PPD and those around them, not to mention the added difficult for individuals to seek help. New technology such as VR paradigms together with psychotherapy components may be promising new tools for research as well as treatment for individuals with PPD. On balance, this literature highlights the need to develop more effective and targeted intervention initiatives for personality disorders in general.

See Also

Schizoid Personality Disorder
Schizotypal Personality Disorder

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Schizoid Personality Disorder

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Diagnostic Classification

Schizoid personality disorder (SZPD) is defined in the fifth edition of the *Diagnostic and Statistical Manual of Mental Disorders (DSM-V)* published by the American Psychiatric Association (APA, 2013) as a maladaptive, longstanding tendency towards social isolation, withdrawal, and detachment that is present in a variety of settings and impairs occupational, social, or psychological functioning. It is classified as a personality disorder (PD) by the DSM-V (APA, 2013), and its symptoms include the lack of desire for family involvement, a preference for solitude, having few friendships, minimal – flat or restricted – emotional expression, and experiencing decreased pleasure from sexual as well as physical activity. Per DSM-V (APA, 2013), to be diagnosed with SZPD, at least four of the following six diagnostic criteria must be present: (1) preference for solitary activities, (2) lack of interest in and absence of close or family relationships, (3) lack of interest in sexual relations with another person, (4) absence of pleasure from physical activities, (5) apathy in response to external evaluations and judgments, and (6) interpersonal affective disengagement. SZPD has been conceptualized in a variety of ways, but its hallmark features of isolation, detachment, and withdrawal have remained consistent across theoretical perspectives and throughout its history.

The construct of SZPD was originally a broad construct, consisting of emotional sensitivity and anxiety in addition to detachment. However, in the DSM-III (APA, 1980) it was redefined (Livesley, West, & Tanney, 1985). Subsequently, the SZPD construct that has been included in each subsequent edition of the DSM is essentially defined by social isolation and emotional detachment. Extant criticism of the validity of this definition of SZPD can be found in the clinical and empirical literature (e.g. Livesley et al., 1985; also, see Ahktar, 1987). The proposal for an Alternative Model for the Dimensional Classification of Personality Disorders explicitly removed it from the list of diagnosable PDs. Several recent empirical studies and reviews have echoed the view that SZPD lacks construct validity (e.g. Hummelen, Pedersen, Wilberg, & Karterud, 2015). However, other research has found

empirical support for the DSM-V (APA, 2013) conception of the SZPD in connection to identifying its core underlying dimensions as social anhedonia and low empathy (Winarick & Bornstein, 2015).

Historical Views: From Antiquity to Descriptive Psychiatry and Psychoanalysis

References to isolated, detached, and withdrawn individuals were evident as far back as antiquity in literature and medical science. Extant literature has credited Hippocrates and Galen with the first account of the SZPD construct by linking isolation, detachment, and withdrawal with a bodily substance called a "humour" and labeled phlegm as the "phlegmatic temperament type." Around the late nineteenth century and early twentieth century, historical precursors to the construct of SZPD emerged in the fields of descriptive psychiatry and psychoanalysis. While psychodynamic theorists generally focus on internal dynamics and descriptive psychiatrists highlight observable symptom clusters, both schools of thought ended up with a description of a common personality type that dovetails with the observable features of the DSM-V (APA, 2013) categorical definition of SZPD. Descriptive psychiatry, including Kraepelin, Hoch, Bleuler, and Kretschmer depicted individuals with SZPD as isolated, socially withdrawn, and emotionally detached (see Livesley et al., 1985 for a review). However, they also emphasized the intense inner sensitivity of individuals with SZPD or at least highlighted the enigmatic nature of their subjective experience in contrast to the DSM-V (APA, 2013). Descriptive psychiatry linked SZPD to schizophrenia both genetically and phenomenologically by noting that it was often observed in the biological relatives of individuals with schizophrenia as well as in individuals who later went on to develop schizophrenia (for a review, see Meehl, 1962).

A central difference between the psychoanalytic and the DSM viewpoint is that the former views schizoid detachment as a defense that masks intense, over stimulating, and painful emotional experience (e.g. McWilliams 2005; Ahktar 1987), whereas the latter views the overt presentation of the schizoid person as reflecting a genuine lack of desire for social relationships accompanied by social-cognitive deficits.

Ahktar (1987) pointed out that Freud's concept of the "narcissistic personality" corresponded closely with present-day conceptions of schizoid individuals, understood as an inwardly directed libido (see e.g. Ahktar, 1987). Per Millon & Davis (1996, p. 45), Freud explained the schizoid psychic structure in terms of a weak, inhibited, or lacking super-ego and id in contrast to their overly developed and active ego. The Freudian perspective has viewed schizoid personality disorder as (a) indifference towards others and a lack of social connectedness (i.e. in the context of their inactive super-ego); (b) lack of aggressive or sexual urges (in connection to their lacking id); and (c) excessive concern with internal experience, thoughts, and imagination (in the context of their over-active ego) (see Millon & Davis, 1996, p. 45).

Wilhelm Reich viewed social isolation in schizoid individuals as a characterological defense mechanism against threatening and destabilizing, sexual and aggressive drives (Silverstein, 2006, p. 46). Reich also identified depersonalization as characteristic of the

schizoid personality type, highlighting their lack of connectedness to the external world and other people. Millon and Davis (1996, p. 222) reported that Deutsch indicated that schizoid individuals possessed an "as-if" personality in which they go through the motions of life without feeling connected to anyone or anything, in a sense acting in ways that they know are appropriate but without any genuine feelings underneath.

Silverstein (2006) held that schizoid interpersonal detachment could result from an intense subjective emptiness rather than as a defense against overwhelming drives. Silverstein (2006) reported that Melanie Klein viewed schizoid isolation as a primitive, regressed state of being in which splitting predominates (see Ahktar, 1987, for a review). Klein hypothesized that schizoid individuals withdraw, detach, and isolate because of their split object representations (i.e. they project the dangerous, threatening, and persecutory – in other words, aggressive – aspects of themselves onto others to maintain a positive, sustainable view of the self), which results in the perception of being dangerous, threatening others that need to be kept at a distance (Ahktar, 1987; Silverstein, 2006).

More recently, British object-relational views of SZPD, such as Guntrip (1969), see solitary, disconnected, and emotionally cut-off lifestyles as the product of maternal deprivation during early childhood that resulted in them equating relationships with emotional pain and traumatic experience, seeing others as persecutory. Guntrip (1969) identified the need to escape from external reality into one's thoughts, fantasies, or subjective reality as a core characteristic of the schizoid character structure. He viewed this need as stemming from intense fears of mental collapse in the context of primitive, unmet needs for safety and nurturance, as well as the perception of a frightening and daunting environment (Guntrip, 1969, p. 87).

Psychometric Trait-Based Conceptions

SZPD has been conceptualized from the perspective of the Five Factor Model (FFM) of personality as comprised of abnormal and maladaptive proportions of normal personality traits. Specifically, SZPD has been conceptualized by the FFM as (1) low extraversion (high introversion), a factor consisting of (a) low warmth, (b) low gregariousness, (c) low assertiveness, (d) low activity, (e) low excitement-seeking, and (f) low positive emotions as well as (2) low openness to experience, commonly referred to as low O. The FFM definition of SZPD as low E and low O has largely been confirmed by empirical research (Widiger, Trull, Clarkin, Sanderson, & Costa, 2002).

Another multitrait model of PDs is the Interpersonal Circumplex Model (IPC), which classifies PDs along two perpendicular *X* and *Y* axes that represent opposing pathological personality traits, respectively. The horizontal *X*-axis spans the dimension commonly labeled *love* ranging from coldness to warmth; whereas, the vertical *Y*-axis spans the dimension of *assertiveness* ranging dominance to submissiveness. From the perspective of the IPC, SZPD has been described as low in warmth and high in coldness as well as low in dominance and high in submissiveness. Wiggins & Pincus (2002) demonstrated empirical support for the IPC conception of SZPD using factor-analytic methods: SZPD loaded on what they labeled the "aloof-introverted" quadrant of the IPC, which is defined by "unassured-submissive" and "cold-hearted" traits.

In addition to the IPC and FFM, attachment theory also accounts for SZPD in connection to trait dimensions. Attachment theory originally proposed categories or types of attachment but has more recently psychometrically defined two distinct attachment dimensions, namely attachment avoidance and attachment anxiety using a scale called the Experiences in Close Relationships (ECR). Based on relative levels of attachment avoidance and attachment anxiety, four basic attachment categories can be formed: high anxiety/high avoidance (anxious-avoidant attachment), high anxiety/low avoidance (anxious-preoccupied attachment), low anxiety/low avoidance (secure attachment), and low anxiety/high avoidance (dismissing-avoidant attachment). SZPD is characterized by a dismissing-avoidant attachment style; in other words, low in attachment anxiety and high in attachment avoidance (Meyer, Pilkonis, & Beevers 2004).

Clinical Cognitive Perspective

Beck et al. (2004) reported that individuals with schizoid PD typically have a history of being teased, bullied, and rejected by their peers as well as feelings of alienation. In addition, they have a negative view of self and others as well as relationships (Beck et al., 2004). Furthermore, Beck et al. (2004) held that these individuals disengage from the world and lead solitary lives out of their dysfunctional beliefs about obtaining "safety." Beck et al. (2004) identified the following core beliefs characteristic of individuals with schizoid PD: "I am different ... I am a loner ... I am nothing ..." (p. 143). Beck et al. (2004) also noted that prototypical individuals with schizoid PD generally express symptoms of anxiety during social interactions but it is in the absence of any fears of criticism. Individuals with schizoid PD reportedly describe frequent experiences "of being overwhelmed by social contact ..." when they have too much interaction with others (Beck et al., 2004, p. 143). Beck et al. (2004) also reported diminished expression of affect and a tendency toward depressed mood in connection to existential concerns as core clinical features of schizoid PD.

See Also

Avoidant Personality Disorder
Big Five
Schizotypal Personality Disorder

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Histrionic Personality Disorder

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Conceptualization and Features

The fifth edition of the *Diagnostic and Statistical Manuel of Mental Disorders* (DSM-V; American Psychiatric Association, 2013) defines histrionic personality disorder (HPD) as "a pervasive pattern of excessive emotionality and attention seeking" (p. 667). For one to receive this diagnosis, he or she must meet criteria for a personality disorder, as well as demonstrate at least five of eight HPD-specific symptoms: (1) discomfort when not the center of attention, (2) inappropriate sexually seductive or proactive behavior, (3) rapidly shifting and shallow emotional expressions, (4) use of physical appearance to draw attention to oneself, (5) speech that is impressionistic and lacking in detail, (6) self-dramatization, theatric, and exaggerated emotional expression, (7) suggestibility/being easily influenced by others, and (8) a tendency to consider relationships to be more intimate than they are in reality. Commensurate with other personality disorders, the pattern of inner experience and behavior must be inflexible, pervasive, and stable, deviant from cultural expectations, and lead to significant distress or impairment in daily functioning.

Individuals with HPD characteristically experience significant dysfunction to their social, occupational, and personal functioning, such as difficulty sustaining relationships, poor interpersonal reliability, erratic employment history, potential inappropriate romantic/sexual involvement with colleagues, impulsivity, affective instability. Furthermore, individuals with prototypic HPD features can be overly reactive and novelty seeking, and are perceived by others as overly dependent, demanding, shallow, high strung, and high maintenance (Beck et al., 2004). Individuals with HPD also tend to struggle with delaying gratification as well as have a proclivity to be emotionally manipulative. In regard to common comorbidities, individuals with HPD demonstrate elevated rates somatic and conversion disorders, major depressive disorder, as well as comorbid personality disorders, including borderline personality disorder, narcissistic personality disorder, antisocial personality, and dependent personality disorder. Further, similar to persons with borderline

personality disorder, individuals with HPD have a tendency to engage in suicidal threats and gestures in effort to gain attention or coerce others.

Prevalence, Etiology, and Course

HPD has been estimated to occur in 1–3% of the general population, and upwards of 24% of clinical samples (Blashfield & Davis, 1993). However, there is much variability in reported prevalence rates, leading to disagreement regarding HPD's actual prevalence. Little is known about the etiology and development of HPD. However, heritable factors, such as genetics and personality traits (e.g. elevated extraversion and neuroticism) appear to play a significant role. Additionally, HPD might also be influenced by environmental factors, such as early familial reinforcement of attention-seeking behavior. Little is also known regarding premorbid behaviors among individuals who will later develop HPD. However, during adolescence, such individuals are likely to act in an attention-seeking, flamboyant, and flirtatious manner. As noted above, HPD typically has a chronic course, although symptom severity may decrease somewhat as the individual ages.

History and Criticisms

The concept of the histrionic personality historically dates back to the Greek concept of "hysteria" (i.e. the wandering uterus), and was long seen as a condition endemic to women. HPD, as a diagnosis, was not included in the DSM until the second edition (DSM-II; APA, 1968) as "hysterical personality disorder." The disorder was later labeled histrionic personality disorder in DSM-III (APA, 1980), which it remains today. Throughout its history, there has been much disagreement regarding the HPD's conceptualization, and the diagnostic criteria have shifted throughout various revisions of the DSM in order to operationalize the disorder as well as discriminate it from other personality disorders. Accordingly, the validity of the HPD construct has historically been scrutinized.

Issues related to the classification and conceptualization of HPD continue to be a topic of debate. HPD is presently classified in Section II of the DSM-V as a "Cluster B" personality disorder (i.e. dramatic, emotional, and erratic cluster), along with borderline personality disorder, narcissistic personality disorder, and antisocial personality disorder. Notably, there is significant overlap between these Cluster B diagnoses, including interpersonal relationship difficulties, self-centeredness, impulsivity, attention-seeking, affective instability. Such overlap complicates the conceptualization, assessment, and diagnosis of these disorders. HPD also shares some features with dependent personality disorder, primarily an excessive need for reassurance and approval. In addition, HPD has been criticized for lacking a scientific base and an adequate and growing empirical literature, and has been included among the personality disorders whose literature is described as "dead" or "dying" (Blashfield et al, 2012). While there has been some recent research on the topic, HPD research greatly lags behind that of other PDs, such as borderline personality disorder.

Furthermore, HPD has been criticized for its potential gender biases. As mentioned above, "histrionic" comes from the term "hysteria" – a term that has been used to discount

women's problems when not easily understood, as well as describe difficult-to-treat female patients (Beck et al., 2004). Additionally, the diagnostic criteria appear to involve maladaptive exaggerations of somewhat stereotypical feminine traits, which contribute to the belief there is gender bias in HPD. Research investigating whether there is a gender bias in the actual diagnosis of HPD is mixed. According to the DSM-V, in clinical settings, HPD is more frequently diagnosed in females. However, "the sex ratio is not significantly different from the sex ratio of females within the respective clinical setting" (p. 668) and studies using structured assessments demonstrate similar prevalence between genders (APA, 2013). Notably, research has suggested that, when presented with identical symptoms, clinicians are more likely to diagnose women with HPD in women and men with antisocial personality disorder (e.g. Samuel & Widiger, 2009).

Assessment and Treatment

Assessment

Currently, there is no widely utilized or accepted HPD-specific assessment (e.g. interview, measure, questionnaire) for diagnosis. There are, however, several assessment interviews and inventories that examine all personality disorders (including HPD) as well as personality traits. Assessment of HPD typically consists of a combination of psychosocial interviews, structured or semi-structured clinical interviews, and self-report inventories. It is important for clinicians to examine each diagnostic criterion, as well as consider aspects such as culture, gender, other diagnoses, and other biopsychosocial factors to determine whether an individual meets full criteria for the diagnosis.

Treatment

Personality disorders, by definition, represent chronic, ingrained patterns of behavior. Therefore, personality disorders are among the most difficult to treat – HPD being no exception. Unfortunately, research assessing HPD interventions is presently lacking. For example, there are currently no randomized controlled trials for the treatment of HPD, nor are there any standardized, evidence-based treatments specifically designed for HPD. However, there are some notable treatment approaches that can be utilized for HPD.

Cognitive behavioral therapy (CBT) is one widely used psychotherapeutic approach that can be utilized to treat HPD. According to CBT theory, thoughts, emotions, and behaviors interact and influence one another. Often, individuals with psychopathology have skewed, unrealistic thought patterns (e.g. nobody likes me, I am not good at anything), which, in turn, affect one's emotions and behaviors (e.g. increased sadness, increased isolation). Accordingly, a goal of CBT is to help an individual change her or his thinking to be more in line with reality. An individual with HPD is conceptualized from a CBT perspective as assuming that they are inadequate and unable to manage life on their own and that in order for life to be worthwhile, they must be loved by everyone all the time. Accordingly, one with HPD will seek attention and approval to ensure that others will meet his or her needs (Beck et al., 2004).

Group therapy has also been suggested as a treatment approach for HPD (Beck et al., 2004). Group therapy allows one to interact with others in the therapeutic environment, and could possibly help those with HPD confront aspects of the disorder that interfere with their daily functioning (e.g. manipulation, attention seeking). Further, the group context could possibly help individuals develop relationship skills. Psychoanalytic therapy is another potential intervention that has been recommended (Oldham, Skodol, & Bender, 2005).

The nature and presentation of an individual with HPD can complicate treatment. For example, HPD patients can be suggestable, which could make one susceptible to agreeing with and following whatever the therapist recommends. Additionally, the superficial, dramatic nature of the patient could make it difficult for a healthy therapeutic relationship to form. HPD patients may also be prone to manipulate as well as push limits and boundaries. Further, their need for attention and approval and affective instability might encourage clinicians to make hasty decisions as well as potentially cross boundaries (Oldham et al., 2005).

Alternative Conceptualizations and Future Directions

When the DSM-V Personality Disorders Workgroup initially released their proposed alternative model of personality disorder diagnosis (DSM-AM), HPD was among the omitted personality disorder diagnoses. The rationale for HPD's deletion as a categorical diagnosis was that there was a lack of empirical studies focusing on HPD. The DSM-AM was not officially adopted at the time of the DSM-V's publication, and is currently described in Section III – Emerging Measures and Models. Notably, a unique aspect of the DSM-AM is that it includes a dimensional trait component – which could be utilized to capture the construct of HPD. In this new system, the HPD construct would be relegated to the dimensional trait model, and an individual with HPD traits could receive the diagnosis "personality disorder – trait specified" rather than a standalone categorical diagnosis. Within this model, HPD is said to be captured as a combination of elevated emotional lability, and the antagonism facets of manipulativeness and attention seeking.

The DSM-AM is not the only dimensional trait model that has been used to conceptualize HPD. A growing body of research has investigated personality disorders, including HPD, from the perspective of the Five Factor Model (FFM) – a well-validated general model of individual differences. The FFM is hierarchical in nature and consists of five broad dimensional domains (neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness), and each domain has six facets. From an FFM perspective, HPD is conceptualized as elevated neuroticism facets (i.e. depression and self-consciousness), extraversion (i.e. gregariousness and excitement seeking), openness (i.e. fantasy and feelings), and the agreeableness facet of trust.

Notably, the future of HPD as a diagnosis is unknown. While HPD has been the focus of some recent research, researchers have described it as a "dying disorder" (Blashfield et al, 2012). Should the current DSM-AM be officially adopted in future revisions of the diagnostic manual, the HPD diagnosis will cease to exist in its current form. However, that does not necessarily mean that the personal, social, and occupational impairment associated with the HPD construct will vanish along with it. Accordingly, further research will

be needed to better understand, assess, and effectively treat those with HPD as well as HPD traits and behaviors.

See Also

Antisocial Personality Disorder
Borderline Personality Disorder
Gender Differences in Perceived Personality Traits of Men and Women

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Dependent Personality Disorder

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Mental health professionals have long recognized that certain people have a dependent personality style – a tendency to look to others for nurturance, guidance, protection, and support, even in situations where autonomous functioning is warranted. The descriptions of Dependent Personality Disorder (DPD) in the *Diagnostic and Statistical Manual of Mental Disorders,* fifth edition (DSM-5) and the *International Classification of Diseases,* tenth edition (ICD-10) are consistent with this longstanding conceptualization of the dependent personality: in both diagnostic manuals DPD is defined as a pervasive and excessive need to be cared for that leads to submissive and clinging behavior, and fears of separation. In addition to manifesting this pattern of dysfunctional behavior, to qualify for a DPD diagnosis the person's dependency-related difficulties must have been present since early adolescence, be consistent over time, and cause marked distress and/or impairment in social and occupational functioning.

Although DPD is associated with a number of negative outcomes (e.g. increased risk for depression, vulnerability to stress-based illness, overuse of health and mental health services), researchers agree that pathological dependency is best conceptualized as a continuum ranging from mild to severe, with no sharp and fixed cutoff distinguishing high levels of "normal dependency" from DPD. As a result, during the past several decades clinical researchers have used measures of DPD and measures of interpersonal dependency (sometimes called *trait dependency*) interchangeably, and many of the DSM-5 and ICD-10 DPD symptoms are derived from studies wherein dependency was assessed using self-report scales (e.g. the Interpersonal Dependency Inventory) or performance-based measures (e.g. the Rorschach Oral Dependency Scale) in lieu of diagnostic interviews. Given the broad array of assessment tools used in these studies, and the myriad populations examined (e.g. psychiatric patients, medical patients, college students, community adults), a sizable evidence base has accumulated over the years, with more than 800 published studies of trait dependency and DPD.

The Evolution of Dependency: From Biology to Relatedness

Clinicians' conceptualization of interpersonal dependency and DPD has evolved considerably since Freud's initial writings on "oral fixation" more than a century ago. Empirical support for Freud's classical psychoanalytic model of oral dependency was sparse, and during the 1940s and 1950s object relations models of dependency gained influence. Although these models differed in the details, they shared a common emphasis on internalized mental images of self and significant figures as central to the etiology and dynamics of pathological dependency. Research confirmed that – consistent with the object relations perspective – individuals with DPD perceive themselves as weak and ineffectual, and view other people as comparatively competent and confident. As a result, dependent people are inclined to look to others for help and support rather than confronting challenges on their own.

Object relations models of dependency and DPD helped set the stage for contemporary integrative frameworks, most notably the cognitive-interactionist (C/I) model. The C/I model contends that the etiology of DPD lies in overprotective, authoritarian parenting, which fosters dependency by preventing the child from developing a sense of mastery following successful learning experiences. In addition, parental overprotection and authoritarianism play a key role in the construction of a representation of the self as ineffectual and weak – a "helpless self-concept." This perception of the self as powerless and ineffectual is the linchpin of a dependent personality orientation, and sets in motion a set of psychological processes that eventually result in DPD. A perception of oneself as powerless and ineffectual will, first and foremost, have *motivational* effects: A person with such a self-concept is motivated to seek guidance, support, protection, and nurturance from other people. These motivations, in turn, produce particular patterns of dependent *behavior*: the person who is highly motivated to seek the guidance, protection, and support of others will behave in ways that maximize the probability they will obtain the protection and support they desire. Finally, a representation of the self as powerless and ineffectual has important *affective* consequences (e.g. fear of abandonment, fear of negative evaluation by figures of authority).

Situational Variability in Dependency-Related Responding

The C/I model differs from other theoretical frameworks in recognizing that while the dependent person's "helpless self-concept" remains stable, the dependent individual's behavior may vary considerably from situation to situation, depending on the demands, constraints, and risks of that situation. When behaving in a passive, submissive manner is likely to strengthen ties to potential caregivers, the dependent person will behave passively and submissively. When active, assertive behavior seems likely to strengthen such ties, the dependent person may behave assertively, even aggressively. Thus, although dependent college students typically show high levels of passivity and compliance around peers, when a figure of authority is present they shift to a more active stance, competing with peers for the attention and favor of the authority figure. Dependent psychiatric and medical patients

are highly compliant with therapeutic regimens, but they also make a greater number of health service visits than do nondependent patients with similar diagnostic and demographic profiles. Although dependent men often behave submissively around friends and romantic partners, when they believe that an important relationship is threatened (e.g. that their partner may be about to abandon them), they may become quite aggressive, and on occasion even violent. As a result, high levels of dependency in men are associated with increased risk for perpetration of partner abuse.

In sum, contemporary integrative models of interpersonal dependency and DPD conceptualize dependency-related responding as proactive, goal-driven, and guided by beliefs and expectations regarding the self, other people, and self–other interactions. These models also shift the locus of stability in dependency from surface responding to underlying thought and motive: Although the behaviors of dependent persons vary considerably from situation to situation, the dependent person's core beliefs (a perception of oneself as powerless and ineffectual) and motives (a desire to strengthen relationships with protectors and caregivers) remain constant.

Contextualizing Dependency: Culture and Gender Role

Beyond the importance of beliefs regarding the self and other people, contemporary thinking regarding interpersonal dependency and DPD has increasingly emphasized the influence of culture and gender role in shaping the experience and expression of underlying dependency strivings. Several investigations have shown that sociocentric cultures (i.e. cultures that emphasize interpersonal relatedness over individual achievement) are more tolerant of dependency in adults than are more individualistic cultures (i.e. cultures that emphasize competition and achievement over group harmony). Not surprisingly, adults in India and Japan (cultures that have traditionally been relatively sociocentric) report higher levels of dependency than do adults in Great Britain and America (cultures that are among the most individualistic). As traditionally sociocentric cultures become Westernized and incorporate individualistic values and norms, self-reported dependency levels tend to decrease, and adults in those cultures – especially men – become increasingly conflicted regarding how best to integrate dependency urges with strivings for autonomy and independence.

Gender role socialization helps shape the experience and expression of dependency as well. In most Western societies, dependent behavior is regarded as less acceptable in boys (and men) than in girls (and women); as a result, men tend to be more reluctant than women to express dependency needs openly. By late childhood, significant gender differences in self-reported dependency emerge and remain relatively stable through later adulthood, at which time men's dependency scores increase and the gender gap closes. Meta-analyses confirm that women in early and middle adulthood score higher than men on every questionnaire and interview measure of interpersonal dependency and DPD for which reliable gender difference data are available. Studies also show that women receive DPD diagnoses at significantly higher rates than men do in inpatient and outpatient settings.

Implicit and Self-Attributed Dependency

Interestingly, the patterns of gender differences that emerge consistently when self-report and interview measures are used do not occur when dependency is assessed via performance-based measures. This is because self-report scales such as the Interpersonal Dependency Inventory assess *self-attributed dependency needs* – dependency needs that are recognized and acknowledged by the patient. Performance-based measures such as the Rorschach Oral Dependency Scale assess *implicit dependency strivings* – dependency needs that shape dependent responding indirectly, often with little or no awareness on the patient's part. Gender role socialization appears to influence women's and men's self-attributed dependency, but not their underlying, implicit dependency; in contrast to findings obtained for questionnaire- and interview-assessed dependency and DPD, women and men do not differ in overall level of implicit dependency.

Given the contrasting psychological processes that are involved in responding to self-report and performance-based dependency tests, it is not surprising that scores on these two types of tests tend to be modestly intercorrelated, with *r* typically in the range of .2 to .3. A complete picture of a patient's dependency strivings requires that self-report test data be combined with performance-based test data, and evidence confirms that integrating implicit and self-attributed dependency scores provides better predictive power than reliance on one type of score alone. It is possible – and in fact fairly common – that a patient will score consistently high (or consistently low) on both types of measures, which would indicate a convergence between that patient's implicit and self-attributed dependency needs, and suggest that self-reports are a reasonably accurate reflection of the person's underlying dependency strivings. Alternatively, multimethod assessment sometimes reveals a divergence between implicit and self-attributed dependency. In one situation, a person may have high levels of underlying dependency but either is unaware of this or unwilling to acknowledge it when asked; this person is best described as having a personality style characterized by *unacknowledged dependency*. In the other situation, a person may have low levels of implicit dependency needs but nonetheless chooses to present him- or herself as being highly dependent; this person is best described as having a *dependent self-presentation*. Although people of either gender may be found in both categories, men more than women tend to manifest unacknowledged dependency, and women more than men show a dependent self-presentation.

The Future of Dependency and DPD

Studies continue to explore the impact of interpersonal dependency and DPD in a variety of contexts and settings; two themes have emerged which will shape future research on DPD.

Healthy and Unhealthy Dependency

Recently investigators have distinguished two distinct manifestations of underlying dependency: destructive overdependence (DO) and healthy dependency (HD), the former characterized by impulsive, unmodulated help-seeking and the latter characterized by

more mindful, goal-directed efforts to obtain help and support. Studies involving the Relationship Profile Test, which provides separate indices of these two dependency styles (along with a third dimension, dysfunctional detachment) have shown that DO and HD have different correlates and consequences in college students, community adults, psychiatric inpatients and outpatients, medical patients, and nursing home residents. Adolescents and adults with DO and HD differ with respect to self-concept, attachment style, interpersonal relations, life satisfaction, affect regulation, and defense and coping style. Although psychotherapy for highly dependent patients has traditionally focused on diminishing underlying and expressed dependency, recent therapeutic approaches also attempt to shift unhealthy manifestations of dependency toward healthier expressions of underlying dependency needs.

Emerging Trait Perspectives

When the DSM-5 Personality and Personality Disorders Work Group delineated a trait-based model of personality pathology they proposed that pathological dependency may be usefully conceptualized as reflecting high scores on three dimensions: anxiousness, submissiveness, and separation insecurity. Along somewhat similar lines, the long-standing Five Factor Model conceptualizes DPD as reflecting high levels of separation insecurity, helplessness, unassertiveness, gullibility, and subservience. Both of these trait perspectives provide important information regarding the interpersonal dynamics of dependency and DPD, but because both trait models have relied primarily on self-report evidence to derive and test their frameworks, both frameworks capture the core elements of self-attributed (but not implicit) dependency. In addition, neither model incorporates the well-established finding that the expression of underlying dependency needs varies over time, and across context. The trait patterns that underlie high levels of implicit dependency (or unacknowledged dependency), and those that may help account for situational variations in dependency-related responding have yet to be delineated.

See also

Borderline Personality Disorder
Depressive Personality (Dysthymic Disorder)
Histrionic Personality Disorder

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Individual Differences in Acculturation

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Central Characteristics

The concept of *acculturation* has been gaining prominence since the 1900s, particularly in the fields of anthropology, sociology, public health, and psychology. Generally, acculturation is defined as a socio-cultural process in which members of one cultural group change as a result of the continuous contact with individuals of a different cultural group. This initial conceptualization requires that several points be clarified. First, the effects of acculturation are observed at multiple levels, such as the psychological level, which includes alterations in person(s)' language, behaviors, values and customs and at the contextual level, which involves changes at the institutional and socioeconomic level. Second, these changes are the result of the contact between two cultures which are the native culture and host culture. The native or first culture is the culture from which the person(s) immigrated. In contrast, the host culture is the one into which the person(s) has immigrated. Nevertheless, as a result of globalization it is more difficult to distinguish distinct and separate cultures. Third, newer conceptualizations of acculturation are considering the influence of more than two cultures. Finally, there are many means through which people acculturate, from dominance over another's culture through either military or political conquest to social media influence.

Related Terms

Acculturation is often confused with *acculturative stress*, which refers to the psychological, somatic, and social difficulties that may accompany the acculturation processes. Acculturative stress can manifest in cultural shocks, anxiety, depression and/or other forms of mental and physical maladaptation or distress (La Roche, 2013). The term of *enculturation* describes the process of learning the accepted norms and values of the culture

or society where they live. As individuals enculturate, they learn the accepted behaviors that dictate what is acceptable within society. *Transculturation* refers to the merging or converging of different cultures (Mio, Barker-Hackett, & and Dominguez Rodriguez, 2016).

Acculturation Theories

1. **Single-factor**, which most people refer to as the melting pot approaches, were the first acculturation theories to be developed and are often measured through one continuum that underscores the degree to which immigrants adapt or assimilate to a new living environment and adopt the norms, values, and practices of the host society (Mio, Barker-Hackett, & Domenech Rodriguez, 2016). These models had often assumed that immigrants should conform to the host culture to be "successful" or "healthy." Consequently, newcomers were encouraged to assimilate as quickly as possible. "Melting pot" immigration policies were promoted by the United States until the 1970s. Nevertheless, single-factor theories depict the acculturation process as a static, one-dimensional, and linear process. The emergence of two-factor theories was a response to these limitations.

2. **Two-factor**, theories explain the diversity of acculturation behaviors through two orthogonal dimensions. The first dimension is identical to the assimilation factor under-scored by single-factor theories. The second dimension refers to individuals' level of retention or rejection of their native culture or how much they value maintaining their first culture. According to this framework, acculturation strategies can be categorized within four sectors or quadrants. Although individuals employ many and diverse behaviors to cope with their cultural contexts, acculturation strategies are the prevalent types of behaviors or strategies through which individuals negotiate their contact with both cultures (see Berry, Phinney, Sam, Vedder, 2006). These four acculturation strategies are:

    2.1 **Assimilation** strategies involve individuals adopting the cultural norms, attitudes and behaviors of the host culture; while neglecting those of their first culture. Research has found that assimilation can lead individuals to experience symptoms of depression and/or anxiety.

    2.2 **Separation** occurs when individuals reject the host culture in favor of preserving their native culture. Separation is often facilitated by immigration to ethnic enclaves or segregation policies. Research has found that using this strategy can also lead to many mental health problems.

    2.3 **Integration** or the salad bowel approach occurs when individuals can adopt the cultural norms of the host culture while maintaining those of their native culture. Research is finding that more positive health and economic outcomes are related to the use of this acculturation strategy (Berry et al., 2006) and that contact amongst different groups can fuel richer and more complex identities and societies.

    2.4 **Marginalization** occurs when individuals reject both their native and host culture. Marginalization is rare and has consistently been associated with the poorest health indicators, particularly more severe depressive symptoms, and substance use.

Currently, two-factor theories are the prevalent way to conceptualize and measure acculturation. However, most studies suggest that individuals, irrespective of their acculturation strategies, can differ between their private and public life spheres. For

instance, an individual may reject the values and norms of the host culture in private life domains (separation), whereas s/he might adapt to the host culture in the public parts of life (i.e. integration or assimilation), which has led additional models to underscore the possibility of more complex quadrants.

3. **Contextual acculturation** theories underscore the context-specific conditions and behaviors that influence the acculturation process. The context is assessed by ecological conditions, such as the place of residence, the size and form of a family unit, the school system or the cultural features of the cultural enclave.

4. **Developmental acculturation** theories highlight how having contact at distinct developmental periods can result in different acculturation outcomes. Developmental models underscore how acculturation is a dynamic process that needs to measured on several occasions. Unfortunately, much of current acculturation research is still assessed at only one time.

Acculturation Research and Recommendations

The main questions guiding acculturation researchers can be summarized as which aspects of the acculturation process are detrimental and which are protective for specific health outcomes. Research has consistently found that acculturation affects health by impacting lifestyle, levels of stress, access to health resources, and attitudes toward health. Among most immigrant groups, higher levels of assimilation have been associated with negative effects on health behaviors and outcomes, but positive effects on health-care use and access. From a public health perspective, health promotion programs have focused on supporting healthy native cultural behaviors and/or ameliorating the adoption of unhealthy cultural practices of the host country. The effect of acculturation is equally important to assess the effectiveness and acceptability of evidence-based interventions and the evaluation of treatment outcomes contributing to ethnic minorities' health disparities.

The effects of acculturation on physical and mental health are thought to be a major factor in the immigrant paradox or the finding that first generation immigrants tend to have better health outcomes than members of the host culture and that these differences decrease over generations. One prominent explanation for the negative health behaviors and outcomes amongst individuals who are acculturating is that they adopt some of the unhealthy behaviors (e.g. smoking, substance and alcohol use, decreased consumption of "low fat" foods) of the host culture and/or experience much *acculturative stress*. Nevertheless, there is much debate in understanding the immigrant paradox. For example, Garcini, Murray, Zhoe, Klonoff, Myers, and Elder (2016) suggest that first generations' health outcomes are not appropriately measured and that many immigrants, such as those with undocumented immigration legal status, are facing unique, complex, and chronic amounts of distress that are not appropriately measured.

Despite definitions and evidence that acculturation entails a two-way process of change, research and theory have primarily focused on the adjustments and adaptations made by ethnic minorities, immigrants, and refugees in response to their contact with the host culture. Almost one-third of the acculturation research has been conducted with Latinos and a fourth with Asians. Research is needed with different groups such as African and

White Americans. Furthermore, highly influenced by an individualistic paradigm, research has mostly focused on the effects of acculturation on the individual level and neglected how it impacts society.

As the importance of the acculturation process is increasingly recognized, a growing number of theories and measures have been developed. Nevertheless, the growing number of theoretical models and scales makes the acculturation field seem fractured and fragmented, particularly because many scales and theories still lack sufficient evidence. In addition, research that identifies specific mechanisms that operate at different levels of influence is also lacking (Abraido-Lanza, Echeverria, & Florez, 2016). For instance, identifying cognitive mechanisms (e.g. social comparison, cognitive reappraisals, "shift-and-persist" processes) that mediate the association between acculturation and different health outcomes under adverse circumstances and across different subgroups is essential to inform theory, measurement, and intervention development. Likewise, developing a better understanding as to how the immigration experience modifies the composition and dynamics of social networks (e.g. ethnic enclaves) can expand our understanding of the acculturation process and its effects on health and behavior across different populations. Moreover, an interdisciplinary and collaborative approach in examining acculturation is needed that is inclusive of clinicians, researchers, educators, and community partners of diverse backgrounds.

Furthermore, many acculturation scales are too broad and are not generalizable with groups different from those in which they were developed. Also, most measures of acculturation place a heavy emphasis on language preference, proficiency, and use; yet not fully capturing the complexities of language use. This may create significant difficulties in assessing acculturation in groups such of African Americans in which, language differences are not relevant. For acculturation scales to be helpful with specific cultural groups, they must be informed by the characteristics of the group in question and include the specific domain being measured. Abraido-Lanza et al. (2016) recommend that acculturation items be relevant to the issue being studied (e.g. studies of obesity should ask questions about diet). Many of these scales also lack a clear understanding of what culture is or how it differs from ethnicity or race (La Roche 2013). This confusion may lead researchers to misconstrue cultural differences as deficits.

It is important that studies consistently factor out the effects of socioeconomic status on acculturation as means to avoid misattributing the effects of discrimination and low SES to acculturation processes. Covariate control for these should become the norm in all acculturation research, especially research on minority health and well-being (Rudmin, 2008). Furthermore, acculturation has frequently been measured through explicit or conscious scales. However, the impact of culture can be a result of implicit or unconscious influences that are not measured by most acculturation scales. Having neglected implicit cultural influences and effects may diminish the sensitivity of these scales (La Roche, 2013).

Even though the importance of acculturation is such that the history of different civilizations could be partly explained through acculturation patterns, many of its findings are currently questioned or neglected. Some researchers (e.g., Hunt, Schneider, & Comer, 2004) have gone as far as suggesting that cultural and health related research abandon the concept of acculturation. Nevertheless, many findings in the acculturation field have been repeatedly replicated. For example, acculturation research clearly questions the efficacy of immigration policies in which newcomers are solely encouraged to assimilate to the host

culture, as past melting pot immigration policies in the United States did, or erecting walls that only end up marginalizing and alienating immigrants. In contrast, acculturation research indicates that the best path for immigrants is to foster supportive environments in which they are welcomed to develop at their own pace. As a result of this openness, it is more likely that they will not only grow healthier but also become more productive members of society. Health is an outcome of successful acculturation, along with improved income, educational, and social status. One of main challenges researchers face today is to define "success" and "health" in terms that reflect the acculturating person's characteristics and is not defined by researchers' culture.

See Also

Stages of Assimilation

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Allocentrism vs. Idiocentrism

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Allocentrism and idiocentrism are terms that relate to individuals and not to societies (Triandis, 1995). Allocentrism are those personality traits associated with collectivistic cultures, and idiocentrism are those personality traits associated with individualistic cultures. However, it is common for people to use the cultural or societal terms – collectivism and individualism – for references to individuals. Thus, one may hear people referring to other people as collectivistic or individualistic as opposed to allocentric or idiocentric.

By far and away, the individual conducting the most work on the distinction between allocentrism and idiocentrism as opposed to collectivism and individualism has been Triandis and his associates (Hui & Triandis, 1986; Hui, Triandis, & Yee, 1991; Triandis, 1995, 2000; Triandis et al., 1986; Triandis, Bontempo, Villareal, Asai, & Lucca, 1988; Triandis, Chan, Bhawuk, Iwao, & Sinha, 1995; Triandis, Leung, Villareal, & Clack, 1985; Triandis, McCusker, & Hui; 1990). Most of these studies have developed measures of allocentrism and idiocentrism or merely defined these terms and underscored their distinction from the cultural/societal equivalents of the terms. For example, in the Triandis et al. (1995) study, the authors examined different ways of measuring allocentrism and idiocentrism and concluded that these constructs were complex and required differing ways of measuring them. Triandis et al. (1986) and Triandis et al. (1988) warned of emic differences between collectivistic and individualistic cultures. For example, when studying the term *self-reliant*, Triandis and his associates found that indiocentric individuals in individualistic societies interpreted the term to involve being independent, whereas allocentric individuals in collectivistic societies interpreted the term to involve not wanting to burden others.

Triandis and his associates' seminal work on the measurement of collectivism and individualism (and their associated terms of allocentrism and idiocentrism) has served as the basis for predictions in other areas. For example, Matsumoto and Kupperbusch (2001) applied the dimensions of allocentrism and idiocentrism to emotional expression. They attempted to replicate Eckman's classic studies comparing Japanese and American research participants on exposure to gruesome images (Eckman, 1972; Eckman & Friesen, 1969,

1971, 1986). In those studies, while both Japanese and American participants displayed horrified expressions on their faces when watching gruesome images (e.g. an amputation of a person's limb, a horror movie segment) when watching the film segments alone, the Japanese participants smiled when viewing these images when the researcher was in the room with them. The American participants still had expressions of horror even with the presence of the researcher. The standard interpretation of this study was that the Japanese participants did not want to show displeasure to the researcher, as such a display would be an implicit criticism of the researcher – someone seen as an authority figure or a superior to the participants. When Matsumoto and Kupperbusch replicated this study dividing American participants (all of European descent) into allocentric or idiocetric individuals, they replicated Eckman's findings, although these results were attenuated from the cross-cultural comparisons. Still, to the extent that the participants were of European descent and living in an individualistic society, Matsumoto and Kupperbusch pointed out the usefulness of categorizing these participants into allocentric and idiocentric individuals purely on the basis of the Hui and Triandis (1986) instrument.

While the Eckman studies on emotional expression explicitly compared participants from a collectivistic culture with those from an individualistic culture, and the Matsumoto and Kupperbusch (2001) study examined European descent participants categorized as allocentric or idiocentric, Dabul, Bernal, and Knight (1995) compared European descent (Anglo, in their term) individuals with Mexican descent individuals in the United States. Dabul et al. examined junior high school children (7th, 8th, and 9th grade students) on allocentrism and idiocentrism. They found that about half of their Mexican descent children's responses to questions about themselves and school-related topics could be categorized as allocentric and about half of their responses could be categorized as idiocentric; most of their Anglo participants' responses were scored in the idocentric direction. Moreover, the Mexican descent participants felt approximately the same about allocentric and idiocentric self-descriptors, whereas the Anglo participants felt that indiocentric self-descriptors were much more important to them than allocentric self-descriptors.

Dutta-Bergman and Wells (2002) examined the comparative happiness of those who were allocentric versus those who were idiocentric in the United States, an individualistic society. They found that those who were idiocentric were happier overall than those who were allocentric. They interpreted their results as allocentrics being somewhat dissatisfied with their lives because they spend so much of their time trying to make others happy and not attending to their own needs. However, while they had nearly 4,000 respondents to a national survey, they did not report the gender participation nor differentiation in allocentric or idiocentric scores. Moreover, they did not know of another study that examined the relative happiness or life satisfaction of allocentrics and idiocentrics in a collectivistic society.

Not surprisingly, there is evidence that allocentric and idiocentric mismatch with cultural values has led to higher levels of distress. Caldwell-Harris and Ayçiçegi (2006) found that allocentric individuals in the United States (an individualistic society) had positive correlations with depression, social anxiety, obsessive-compulsive disorder, and dependent personality, whereas idiocentric individuals had negative correlations with these same disorders. On the other hand, idiocentric individuals in Turkey (a collectivistic society) had positive correlations with paranoid, schizoid, narcissistic, borderline, and antisocial disorders, with allocentric individuals having negative correlations with these disorders.

Zhang, Norvilitis, and Ingersoll (2007) found that idiocentrism was associated with suicidal ideation in both collectivistic (China) and individualistic (United States) societies for women, although allocentrism was seen as a protective factor, which positively correlated with social support, particularly in a collectivistic society.

See Also

Harry Triandis
Individualism vs. Collectivism

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Monolingualism, Bilingualism, Multilingualism

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Defining Monolingualism, Bilingualism and Multilingualism

Simply stated, *monolingual* describes an individual who has acquired one language, but to define *bilingual* and *multilingual* represents a difficult task. The term *bilingual* primarily describes an individual with possession of two languages, and *multilingual* broadly refers to an individual with two or more languages. However, these rudimentary descriptions alone are not sufficient to appreciate the linguistic abilities of an individual. For example, calling an individual *multilingual* does not provide information regarding the understanding of their various possessed languages, nor does it entail which language is dominant. Dependent on the quantity of possessed languages, an individual can nevertheless be labeled "bilingual" or "multilingual" regardless of specifics encompassing language usage or proficiency.

The consequences of not formally appreciating an individual's linguistic mechanisms compromise psychological complications in social, cognitive, and developmental domains. Imagine a toddler raised by Chinese- and Spanish-speaking parents, with English exposure limited to schooling. The educational system may begin to speculate social or developmental impairments if the child fails to engage with peers or is not meeting expected educational milestones. To deem the observations as true deficits, the toddler's capabilities must be addressed in Chinese, Spanish, and English to rule out impairments attributed to limited English exposure.

The risk of misinterpreting or mislabeling multilinguals is highly probable if their observed impairments are not sought to be understood using sociolinguistic considerations. Unique characteristics and potential varying language abilities must be fully explored to not only understand individual differences that coexist when addressing falsely perceived homogenous groups but also avoid Type 1 errors and other negative consequences.

Linguistic Classifications in Multilingualism

A seemingly homogenous group comprised of individuals who speak the same language still exhibit a high prevalence of linguistic differences. These linguistic differences include, but are not limited to, the extent of an individual's fluency and proficiency, the context or situation the language(s) are used in, the age at which an individual acquired the language, as well as how the language(s) were acquired. These interconnected variables demonstrate clear individual differences that can be measured, while also shedding light on unmeasurable considerations.

Fluency

An individual obtains multiple degrees of classification in terms of fluency due to the combination of understanding, speaking, reading, and writing in one or more languages.

As a result, there are many variations of fluency within and across individuals and the multiple languages they possess. For example, *receptive bilingualism* represents an individual who is able to understand two languages (spoken or written) but is only able to express one. An individual who is a *productive bilingual* not only understands, but can also speak and possibly write in two or more languages.

Proficiency

Sharing similarities with fluency, there are varying levels of proficiency across multilingual individuals that include grammatical knowledge and skills, aspects of communication (fluency; i.e. learning, reading writing, oral communication, numeracy), cross-language interactions, and competence in sociolinguistic discourse. When establishing language proficiency across a range of contexts, the terms "balanced" (equal competence) and "nonbalanced" multilingual denotes the degrees of skill that may be unique across an individual's possessed languages. Other classification methods of proficiency levels concern the underlying mechanism of language mastery and production. Specifically, the mastery of two languages can be categorized by *coordinate bilingualism*, *compound bilingualism*, and *subordinate bilingualism* (Weinreich, 1953). Depicted by linguistic elements being related to their own unique concepts, *coordinate bilingualism* contrasts *compound bilingualism* in that the latter involves having two separate linguistic elements for a single concept. *Subordinate bilingualism* is characterized by the linguistic elements of one of the individual's languages being available only through elements of the individual's other language. While these specific mechanisms are difficult to measure, it is important in recognizing the process of language functioning and the language in which an individual identifies with and perceives the world.

Time of Acquisition

Time of acquisition of the second (or third, etc.) language can be divided into simultaneous, early, and late. *Simultaneous multilingualism* entails the acquisition of two or more languages at the same time. An example of a simultaneous bilingual would be an infant

who is equally exposed to two languages from birth. *Early multilingualism* is characterized by the acquisition of a second language before complete acquisition of the first language, while *late multilingualism* involves the acquisition of an additional language after complete acquisition of a preceding language.

Context

An individual's preferred and best-spoken language is referred as the *dominant language.* However, this ambiguous classification can adapt based on context and across different periods of time. Specifically, a *dominant language* can differ based on the person addressed (e.g. members of family, friends, strangers), the topic of the conversation, as well as the setting or purpose of the encounter. It can also vary across time when describing an individual who may exhibit *subtractive bilingualism,* which is when the competence of the first language gradually declines due to the addition of a second language.

Other Considerations

Language of schooling, formal versus natural language attainment, and the discrepancy between language(s) and culture(s) are other variables that add to the complexity of multilingual individuals. Specifically, the discrepancy between language and culture refers to the false assumption that monolinguals and multilinguals form a homogenous group, respectively. However, there is variability among individuals that share the same language(s) depending on country of origin and subcultural groups. These variances are demonstrated through specific language use, dialect, and cultural emphases on self-expression. There is also variability among the acculturation of the individual and the interaction between their own native culture (and language) and the acquired culture (and language). As a result, individuals who speak the same language(s) cannot be automatically and identically compared, assessed, or evaluated without weighing linguistic considerations.

Bilingualism and Multilingualism in Practical Applications

Research has demonstrated that individuals who vary across linguistic variables differ across social, psychological, and cognitive functions. As a result, it is important to acknowledge an individual's composition of linguistic ability, especially in the context of multiple settings (Salinas, Bordes-Edgar, & Puente, 2015; AERA, APA, & NCME, 2014). Although casual, everyday encounters (e.g. home, work, social) have a greater probability of being marred by discrepancies attributed to language, psychologists have discovered means to limit the negative effect the meta-construct may have on evaluations.

Assessment

To account for the degree of variability across language proficiency and fluency, the language used during an evaluation must be selected within the context of the appropriate setting. For example, when assessing for a possible language disorder, the evaluation should

take place in each language the examinee is familiar with, noting if similar difficulties are observed across each language. In certain situations (e.g. neuropsychological examination), an individual may be evaluated using the language they prefer. To verify language preference and proficiency obtained in conversation or through self-report, objective measures that assess letter fluency, naming, and reading comprehension should also be used (Thames, Karimian, & Steiner, 2016). In addition, data regarding language acquisition, context of the language, and the language used during their formal education attainment should be gathered (Salinas et al., 2015; Rosselli et al., 2013). Together, these variables will produce a clearer depiction of the individual's functioning with limited inference from linguistic variables.

Although multiple constructs of language have been identified as being necessary during the assessment of overt behaviors and functioning, it is important to recognize that they also impact the manner in which emotions, situations, and concepts are interpreted and experienced. For example, Latin cultures have been recognized for placing greater emphasis on the expression of emotions compared to Anglo-Saxon countries (Bhugra & McKenzie, 2010), while those who speak English and German are noted to be more oriented toward technical issues (Puente et al., 2013). Thus, the language(s) used during evaluations that encompass other domains of nonverbal functioning, can produce skewed results if the proper language(s) are not considered.

Clinical Implications

Historically, it was believed that the effect of linguistic abilities when comparing individuals of diverse compositions could be reduced if verbal abilities were not incorporated. However, research has demonstrated the detrimental effects of assuming nonverbal abilities as comparable across individuals who speak different languages and with individuals who have different levels of language proficiency. Not only are there observable language differences when evaluating individuals through a psychological perspective, there are also potential cognitive differences. While investigating the effect of language acquisition and cognitive abilities, research has demonstrated that speaking two languages negatively impacts the performance on some cognitive measures, with an inverse effect as bilinguals age and mature (Puente et al., 2013). These complexities and underlying functioning abilities arise when culture, language, and other variables, not limited to cognition, intertwine. Thus, it is important to practice nonbiased assessment to lessen the potential discrepancies that a misunderstanding of linguistics can bear.

Ethical Concerns

In settings where any form of assessment is involved (e.g. psychoeducational) different avenues can be pursued to ensure a fair and accurate evaluation. For instance, the evaluator should share the same native language as the individual being evaluated in order to establish cultural compatibility and to maintain fluid conversations between both parties (Thames et al., 2016). However, with that not always being a possibility, other means of decreasing the potential discrepancies should be practiced. Using appropriate measures that encompass the accurate language of administration, considering the language the

tests were originally developed, as well as available normative comparison data are all imperative to conduct an ethical evaluation. Without taking these precautions, the entire evaluation can unintentionally produce distorted results.

When linguistic variables that involve the evaluator and examinee are compromised or adapted, the sensitivity and validity of the results must be reviewed with caution. If a modification occurs (e.g. using an interpreter, eliminating test items or subtests, accepting responses in multiple languages), the evaluation may no longer contain conceptual or construct equivalence due to changes that affect the original and intended construct measured (AERA, APA, & NCME, 2014). Consequently, the results are not comparable with normative data and the assessment cannot be accurately interpreted. Although modifications impact the reliability and validity of the assessment, nonstandardized evaluations that accommodate to linguistic and cultural differences have the ability to provide insight that would otherwise be unattainable with standardized constraints (Olvera & Gómez-Cerrillo, 2014). In cases that are unequivocally affected by linguistic abilities, a flexible approach can be used in order to determine what the individual's needs are and to assess the situation or context presented.

See Also

Acculturation Considerations in Personality Assessment
Biculturalism
Monocultural vs. Multicultural

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Monocultural versus Multicultural

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Origins of Terms

While a definite origin of the term *monoculturalism* was not found, *multiculturalism* was coined in 1970s Quebec to describe honoring cultural differences while preserving and honoring the traditions of different cultural communities (Hong et al., 2016, p. 51).

Monocultural

Monocultural is defined as "a single, homogenous culture without diversity or dissension" (thefreedictionary.com). As a political ideology, it is where a single social or ethnic group seeks to dominate society through suppression or oppression of other groups (oxforddictionaries.com). It can describe a population with respect to several factors such as race, sexual orientation, age, and class, and each of these factors can be considered as the more dominant factor in comparison to marginalized groups within the same population (e.g. people of color, homosexual, elderly, lower-class) (Batts, 1990). Monoculturalism, as discussed across various disciplines, has been used in reference to population statistics, ideology, the practices of social institutions, as well as the advantages and disadvantages afforded members of different groups which result from it.

In the psychological literature, the topic is more specifically discussed as *ethnocentric monoculturalism*. Taylor (2006) defines ethnocentric monoculturalism as the belief that one's own culture is normal and valid and that other cultures are abnormal, inferior, or pathological. Such beliefs then justify the differential treatment of individuals from other groups. Whichever group in society holds the majority social power defines the norm. In the United States, European American culture is the dominant group; therefore, they define the dominant cultural values that are considered the norm; all other cultures are considered abnormal, and pressure is placed on those deviant groups to conform.

Sue (2004) delineates five attributes of ethnocentric monoculturalism: (1) belief in the cultural superiority of one's own group, and sense of entitlement; (2) belief in the inferiority of other groups; (3) the power to define reality or to impose one group's beliefs on another; (4) manifestations in institutions through biased structures, programs, policies, and practices; and (5) the invisible veil of "personal and institutional injustice that operates outside the level of conscious awareness" (p. 766), including the American cultural myths of meritocracy, equal opportunity, and fair treatment.

Several authors assert that the field of psychology has a history of ethnocentric monoculturalism (e.g. Riggs, 2004; Sue, 2004; Sue, Bingham, Porché-Burke, & Vasquez, 1999; Taylor, 2006). Sue et al. (1999) comment on how the concepts and theories of psychology were created in and taken from a Eurocentric context and may not be applicable to culturally diverse populations. Historically, psychology has espoused mainstream Western culture as the norm and variations away from this as deviant. At times, psychology has actually supplied ammunition in the form of research and theory that has supported themes of racial inferiority, misogyny, and homophobia (Hall, 2014).

For example, Riggs (2004) argues that current conceptualizations of mental health and mental illness are based on a Western, Eurocentric standard, and anyone who does not fit that model is considered mentally ill. The current models do not account for other cultures who may attribute mental illness to sources beyond the individual, such as the environment, the collective, or the spiritual realm. In other words, assumptions regarding a universal definition of mental health pathologize individuals from diverse cultural groups and ultimately result in their oppression.

Multicultural

Multicultural is defined as pertaining to, or relating to many different cultures or ethnic groups (Dictionary.com). *Multiculturalism* is defined as "the presence of, or support for the presence of, several distinct cultural or ethnic groups within a society" (Dictonary.com). It is the belief that various cultural groups can coexist in a society where each merits equal value and opportunity. As a philosophy, multiculturalism has influenced a wide range of disciplines, including education (e.g. Banks & Banks, 2004), political science (e.g. Parekh, 2000), medicine (e.g. Wear, 2003), as well as psychology.

The basic assumptions of multiculturalism are tolerance, respect, inclusion, sensitivity, and equity (Mio, Barker, & Domenech Rodriguez, 2016). *Tolerance* refers to a fair, open, and objective attitude toward people and ideas that differ from your own. *Respect* means to show regard or consideration for differences. Inclusion involves active efforts to reverse the historical exclusion of certain groups in society. *Sensitivity* is the acknowledgment that cultural differences exist and consideration of these differences in one's interactions. *Equity* refers to equal access to opportunities and resources, including provision of extra assistance to those who have historically not had equal access.

As an action-oriented approach, multiculturalism also includes the concepts of empowerment, social justice, and social change (Banks, 2010; Gorski, 2010). In other words, it is not enough to simply talk about differences; we must actively work to eliminate prejudice, discrimination, and oppression. *Empowerment* means helping marginalized, disenfranchised, and mistreated groups stand up for their rights and fight for equal treatment. *Social*

justice means working toward equity, where every citizen has equal access to the rights, privileges, opportunities, and resources available within society. Achieving these goals requires widespread *social change*. This means implementing policies and practices to ensure everyone receives fair treatment and creating a social environment in which differences are valued and respected. In other words, multiculturalism is more than a philosophy; it is a "social intellectual, and moral movement" (Fowers & Davidov, 2006, p. 581) (Mio, Barker, & Domenech Rodriguez, 2016).

Multiculturalism as a philosophy has been very influential in the field of psychology (Fowers & Davidov, 2006; Hall, 2014; Sue, Bingham, Porché-Burke, & Vasquez, 1999). Multiculturalism within psychology means infusion of the basic tenets into all activities of the profession, including research, teaching, clinical work, and consultation. The path toward multiculturalism in psychology has not been a smooth one. As mentioned above, the field has been guilty of monoculturalism. However, the hard work of many pioneers pushed the profession to adopt a multicultural perspective. The American Psychological Association (APA) officially acknowledged the importance of a multiculturalism within the field through its adoption of the Multicultural Guidelines (2003, 2017). The APA (2008) report on the implementation of the original Guidelines states:

> As psychologists, we recognize the ever-increasing racial, ethnic, and cultural diversity of America and the need to incorporate respectful understanding of group differences in our professional practice, research, and teaching. As an organization, APA recognizes the critical need to attend to diversity in our own house and make certain that our policies and publications appropriately reflect affirmative steps toward inclusive thought and action. (p. v)

The importance of multiculturalism is also recognized in the APA Ethics Code, which states that psychologists should be aware of and respect cultural, individual, and role difference, consider these factors when working with individuals from diverse groups, and work to eliminate the effects of bias and prejudice in their work (APA, 2017).

The field moved away from the term *ethnic minority psychology* to *multicultural psychology* sometime during the 1990s (Hall, 2014). This took place because, when contrasted with the term *minority*, the term *multicultural* is considered more inclusive because it goes beyond race, ethnicity, and country of origin to include other historically marginalized identities such as gender, sexual orientation, socioeconomic status, religion, etc. It is considered more accurate because globally, people of color constitute a numerical majority, and by the year 2044 census projections predict the United States will be "majority minority" (US Census Bureau, 2015). It is more empowering, because it no longer implies that one group is of lesser status than another.

The infusion of multiculturalism within psychology is not without controversy. Riggs (2004) suggests that multiculturalism actually works to continue the monoculturalism of mainstream White psychology, because when White culture is described as "one of many cultures," it may fail to shed light on the oppressiveness of White culture. Franklin (2009), Jose (2015), and Sue et al. (2009) express concern that the move toward inclusion, a broad agenda, and development of common goals and interests between groups may drain resources and take the focus away from the targeted interests and

needs of specific ethnic groups. In addition, important topics (e.g. racism, sexism, and homophobia) within multiculturalism may be overlooked, and individuals exempted from confronting their own prejudices.

Conclusion

Despite some of the potential problems with multiculturalism, most emphasize the importance of a multicultural perspective within the field of psychology, as summarized in the following quote from Sue (2004):

> There is a great need to develop a truly multicultural psychology that recognizes important dimensions of the human condition such as race, culture, ethnicity, gender, religion, sexual orientation, and other sociodemographic variables. A psychology that does not recognize and practice diversity is a psychology that is truly bankrupt in understanding the totality of the human condition. It will forever perpetuate a false reality that provides advantages for certain groups while disadvantaging and oppressing others. As long as the invisible is not visible, the profession of psychology may continue to operate from monocultural theories and practices that deny the rights and privileges due to all individuals and groups. (p. 767)

See Also

Addiction and Addictive Personality
Biculturalism
Cultural Differences
Cultural Encapsulation
Cultural Specific Therapies
Derald Wing Sue
Individual Differences in Acculturation
Individualism vs. Collectivism
Monolingualism, Bilingualism, Multilingualism
Personality in Culture
Racial/Ethnic Identity
Universality vs. Cultural Specificity of Personality

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Biculturalism

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Introduction and Definition

Biculturalism describes one's status of being identified with two cultures, internalizing, or containing within oneself, the identity and/or behaviors of both cultures. Biculturalism encompasses a variety of situations in which the individual is part of two systems of values, customs, behaviors, and/or languages. Generally, the term refers to being a member of two ethnic cultures, a culture of origin or heritage and a second culture which often functions as the more dominant culture. Less commonly, biculturalism is also applied broadly to subcultures of identity that may include religion, sexual orientation, gender identity, geographic location, profession, and social group. For example, women working in traditionally male professions may be said to be operating both in a female culture and a male (dominant) culture, each of which has distinct belief systems, values, and behaviors. Biculturalism occurs as a result of a variety of situations, including immigration, interethnic relationships, mixed heritage, colonialism and war-related occupations, expatriation, and international educational opportunities.

The essence of being bicultural merely implies the presence of two cultures but does not indicate a degree to which the separate cultures are integrated or the degree of fluency achieved in each culture. For example, one can be bicultural by immersing in one culture while rarely interacting with the other. Biculturalism therefore implies that one has an option to primarily dwell in either or both cultural realms.

Theories of Biculturalism

Theories of bicultural adjustment vary with more recent perceptions couching biculturalism within the broader concept of acculturation. Acculturation is described as the process of adapting to a new culture without giving up aspects of the original, inherited culture.

Biculturalism was initially viewed on a unidirectional continuum that ranged from *separation* (adherence to the original culture) to *assimilation* (fully adopting only the new culture) with biculturalism (equal incorporation of both cultures) and marginalization (equal rejection of both cultural identities) both in the middle of the continuum and hard to capture as separate concepts. This was unfortunate since biculturalism has been shown to lead to more emotionally healthy outcomes, such as greater life satisfaction, stronger self-esteem, and positive affect. In addition, biculturalism is also related to markers of socio-cultural success, including higher academic, career, and social achievement. Marginalization has been shown to lead to the least emotionally and socially healthy outcomes.

More recently, biculturalism has been recognized as a bi- or even multidirectional concept that takes into account the degree of identity and involvement with each culture, rather than weighing the cultures against one another on a continuum that implies a zero-sum approach where greater involvement in one culture implies less involvement with the other. Affiliation and loyalty to each culture is viewed on a number of dimensions, including language, social group, daily behavioral routines, cultural traditions, values, knowledge and beliefs, communication patterns, level of cultural identity, and societal or systemic aspects such as perceived discrimination, immigration status, and family structure and socialization.

Biculturalism is associated with higher levels of cognitive complexity and better performance on tasks requiring creativity. From a cognitive theory perspective, integration of disparate aspects of two different cultures is thought to activate separate cognitive schemas (frameworks for organizing information). Biculturals' attempts to connect disparate schemas and to find similarities between them may lead to increased cognitive complexity and creativity. Flexible shifting or alternating between the two cultural frameworks is called *cultural frame switching*.

In terms of individual differences and biculturalism, Phinney and Devich-Navarro's (1997) work with African American and Mexican American youth identified three bicultural types: *blended*, *alternating*, and *separated*. Bicultural individuals in the same family may engage differently with their bicultural statuses. One member may blend both cultures, expressing a stable identity as bicultural. A second member may be equally competent in both cultures but may view the two cultures as more disparate, choosing to alternate between cultures, the situation, or environment determining identity. These individuals might dress and feel more Western at work but may wear traditional ethnic clothing and feel more ethnic at home. Still a third member of the family may primarily identify with the culture of heritage and view the self as separate from the more dominant Western culture.

Roccas and Brewer (2002) suggested four categories of what they call social identity complexity: *merger*, *compartmentalization*, *dominance, and intersection*. The first three types are roughly consistent with Phinney and Devich-Navarro's (1997) blended, alternating, and separated bicultural types. Roccas and Brewer (2002) added a unique fourth intersection type of bicultural who lives at the junction of identities, virtually creating a third culture out of biculturalism itself, identifying mainly with other bicultural peers.

Building on earlier theory that addressed individual differences in terms of types of bicultural individuals, Benet-Martínez and colleagues (for a comprehensive review see

Cheng, Lee, Benet-Martínez, & Huynh, 2014) identified the subjectively perceived relationship between one's two cultures as key to understanding individual differences in bicultural identity. Bicultural identity integration refers to the degree to which both cultural identities are blended and harmonious within the self. Higher levels of bicultural integration require bicultural competence, which includes internalization of both cultures' basic beliefs and values, positive attitudes toward both cultural groups, bicultural efficacy (confidence in ability function effectively in two cultures with a stable sense of identity), verbal and nonverbal communication skills in both cultures, role repertoire (culturally appropriate use of interpersonal skills), and groundedness (stable social networks in both cultures; Laframboise, Coleman, & Gerton, 1993).

Competence in both cultures, perceived *harmony versus conflict,* and *cultural blendedness versus compartmentalization* are key determinants in bicultural identity integration. Accurate recognition of each culture's social cues contributes to effective behavioral responses. Degree of success in these efforts serves to reinforce increased or decreased integration of the two cultural identities.

Development of Bicultural Identities

Differences in development of biculturalism have been associated with generational status (e.g. age of immigration vs. first generation). Tsai, Ying, and Lee (2000) found that for Chinese Americans who immigrated prior to 12 years of age, engagement in American culture was negatively associated with identification with Chinese identity. Conversely, for Chinese Americans who immigrated to the United States after 12 years of age, engagement with Chinese culture was negatively associated with American identity. First generation Chinese Americans born in the United States had no correlations between involvement and identity with either culture.

Facility in language of each culture (i.e. bilingualism) impacts bicultural competence in terms of effective social engagement. Personal volition regarding immigration circumstances (voluntary vs. forced immigration) is also associated with higher levels of bicultural integration. Personality factors, such as low neuroticism, influence willingness to engage in new cultural experiences. Previous positive or negative bicultural experience correlate with higher or lower bicultural identity integration, respectively. In addition, environmental context, including acculturative stress, intercultural conflict, discrimination, and cultural isolation contribute to individual differences in bicultural identity development.

Measurement

Many studies of biculturalism employ typical measures of acculturation used in monocultural studies. One measure specifically designed to address biculturalism is the *Bicultural Stressors Scale* (Romero & Roberts, 2003), a 14-item, Likert-type scale that measures aspects of biculturalism: intergenerational conflict, discrimination, language stressors, and peer pressure to conform with cultural heritage. A second approach includes versions of the

Bicultural Identity Integration Scale (BIIS-1; Benet-Martínez & Haritatos, 2005), a 14- or 19-item (depending on the version), Likert-type measure now with two scales, blendedness and harmony, that evaluate the strength of bicultural identity integration (Cheng, Lee, Benet-Martínez, & Huynh, 2014).

Limitations and Future Directions

The bulk of research on biculturalism has been done with Asian American participants and implications for generalizability are unclear. Research in other countries and with other US populations, particularly Latinos and African Americans, is increasing and will likely illuminate culture-specific applicability of work done thus far. Further research is needed regarding individual differences that influence development and integration of bicultural identity, such as personality factors and interethnic heritage versus acquired biculturalism.

See Also

Biracial and Multiracial Individuals
Monocultural vs. Multicultural
Monolingualism, Bilingualism, Multilingualism

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Biracial and Multiracial Individuals

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Introduction

In 2008, the United States elected the first biracial president. From eugenic roots to federal rulings and US Census categorization, biracial identity has been intrinsically linked to the racial dynamics of our country. The field of psychology reflects these dynamics, moving from a place of pathology to one of racial integration. Yet, research on this topic is still in its infancy.

Historical Context

In the early United States, there was both the reality of interracial mixing and the legal prohibition of it as soon as Europeans arrived. Innately racist social policies of segregation aimed to prevent the spread of perceived undesirable traits by criminalizing sex, cohabitation, and marriage between a White individual and an individual of color. The concept of miscegenation, or sexual relations between individuals of different races resulting in procreation, came from the eugenic movement in Europe in the early twentieth century, a set of beliefs and practices that aimed to encourage the reproduction of individuals with perceived desired traits.

The child of interracial mixing was marginalized and disenfranchised, seen as tainting racial purity and threatening social and political systems that dictate power and privilege. Using the construct of hypodescent, the automatic external assignment of the perceived inferior race to the child of miscegenation, individuals with any amount of African ancestry were classified as Black; this idea was known as the "one-drop" rule, and gradually codified into law throughout the twentieth century. Terms like quadroon, octoroon, and quintroon were used to designate the proportionality of hypodescent, with the assumption that once there was racial impurity, it would persist as legacy. While there were proportional variations across

states and differences regarding Native Americans and African Americans, the underlying principle of European superiority and eugenics persisted.

In 1967, state anti-miscegenation laws barring marriage between Whites and Blacks were repealed in the *Loving v. Virginia*, 388 U.S. 1 ruling (Loving, 1967). The court ruled this law held no legitimate purpose, and was instead hateful and distasteful towards US citizens, and violated the Due Process Clause of the Fourteenth Amendment. Subsequently, the United States saw an increase in interracial marriages that spawned a large number of multiracial births. From 1970 to the early 1990s the number of interracial marriages increased from 310,000 to 1.4 million, and in 2008 there was an estimated 2.6 million (Rockquemore & Brunsma, 2008). The resulting "biracial baby boom" has grown from an estimated 1% of the population in the 1970s to 5% in 2000 and is expected to rise exponentially (Masuoka, 2008).

The 2000 US Census was the first to allow respondents to self-identify as multiracial for official government counts, rather than "other," a catch-all category conveying little to no meaning (DaCosta, 2007; Nagai, 2010). In 1993, multiracial representatives suggested to lawmakers that adding either a "multiracial" option, or allowing for the selection of all applicable racial categories would offer better recognition of this growing population (DaCosta, 2007). The 2010 Census reports approximately 9 million (2.9%) multiracial persons reside in the United States, a 32% increase from 2000 (United States, 2012). Of the 9 million residents, 92% of multiracial respondents checked just two races. The most common multiple race combinations identified were: Black and White (1.8 million), White and some other race (1.7 million), White and Asian (1.6 million), White and American Indian and Alaska Native (1.4 million).

Biracial and Multiracial Identity Development Models

E. Stonequist (1937) was the first scholar to address biracial identity development, and numerous racial identity theories have existed thereafter in an attempt to conceptualize multiracial identity development. Singular racial identity development (RID) models do not account for the processes that mixed-race individuals experience (Rockquemore, Brusma, & Delgado, 2009). Further identity development models were developed by Poston (1990), Root (1990), Kerwin and Ponterotto (1995), and Rockquemore (1999).

The first prominent academic theory to address the identity formation of biracial individuals was popularized by Everett Stonequist's 1937 book titled *The Marginal Man: A Study in Personality and Culture Conflict*. He asserts that the biracial nature of the individual creates a need to reconcile two distinct and antagonistic cultures. The marginal man will usually attempt to identify with the dominant culture, but may find ways to serve as a leader to the disempowered culture. The biracial identity is devoid of the co-constructed clarity of "we" versus "they," which manifests in isolation, alienation, and stigmatization. Owing to the individual's anomalous position in society, he or she will become the target for hostile sentiments from both parent races toward one another, and this will inevitably cause maladjustment in the individual.

Stonequist suggested a three-phase life-cycle for biracial individuals. As a child, the biracial individual is introduced to parent cultures but is not aware of the differences in power or privilege, and usually identifies with the dominant race. In the crisis phase, the

individual experiences a crisis of identity and belonging characterized by rejection, dissonance, and ambiguity. This results in a maladjusted divided identity, applying the negative attitudes of parent cultures to him or herself. In response, the individual may continue to identify with the dominant culture by attempting to pass, identify with the subordinate group, or attempt to extricate from any racial identity. Stonequist emphasized the potential for biracial individuals, due to their distinctive understanding of both parent cultures, to be a cultural liaison between the two and a spokesperson for the subordinate group. Stonequist's theory is considered the precursor to future identity development models, but has been critiqued for blaming the individual or miscegenation itself for identity problems, instead of placing between-group prejudice as the core of the problem.

W. C. Poston (1990) asserted that previous monoracial models of RID were difficult to apply to biracial individuals due to inherent limitations: the insistence that biracial individuals need to choose one primary identification; would initially reject their minority identity at an earlier stage and reject the dominant culture at a latter stage without allowing for integration of multiple identities; and may not experience acceptance into either parent culture, whether minority or dominant. Poston's model starts with *personal identity* in which the young person is generally unaware of racial and ethnic differences. At the *choice of group orientation* stage the person is pressured by family, peers, or social groups to choose a singular identity and could result in crisis and isolation. The person's previous experience of prejudice and rejection can influence this choice. The *enmeshment/denial* stage involves a loyalty-pull in which the individual chooses one parent culture over another and experiences confusion and guilt in the process. The fourth stage of *appreciation* for both parent cultures is needed to progress. The final stage of *integration* is where the individual establishes a secure, valued, and coherent racial identity.

Root (1990) identified four processes for biracial individuals. In the *acceptance of the identity society assigns* stage the biracial person will adopt the racial group that they have been socialized to identify as by others. In the *identification of both racial groups*, the individual will positively self-identify as biracial. In the *identification of a single racial group* stage, the individual consciously decides to identify as a single race regardless of their biracial makeup, how their siblings self-identify, or what society imposes on them. This status is not considered problematic for the individual; however, it is important to note that identifying with a single racial group may not be acceptable to others when the biracial individual's physical characteristics are not congruent with their self-identified single race (i.e. White for a Black/White person), or in regions where the crossing of racial lines is unacceptable. Finally, there is the *identification of a new racial group*. In this stage the mixed-race person feels exceptionally committed to their multiracial heritage and wishes to identify as such in all areas of their lives. However, individuals who cannot identify as two or more races or develop a complete sense of belonging to one racial group will likely choose to identify as a new racial group, such as "human."

Kerwin and Ponterotto (1995) proposed a biracial identity model that used age-based stages and asserted that individuals may have both a public and private identity. In addition, this model was the first to acknowledge that biracial individuals may experience rejection from both parent cultures. This model starts at the *preschool* stage, where biracial children

up to the age of five become aware of physical appearance. With the *entry to school* stage, exposure to other children introduces the pressure to identify as monoracial. In the *preadolescence* stage, social meanings become more sophisticated, taking into account physical characteristics, culture, ethnicity, and religion. When young individuals experience overt or covert racism, sensitivity is heightened and may trigger identity questions. *Adolescence* can bring increased external pressure to clearly express a monoracial allegiance. *College/young adulthood* stage continues to bring pressure to monoracially identify, and the individual may experience a heightened yet isolating awareness of race relations. The *adulthood* stage brings continued exploration in race and culture, which may result in more nuanced self-definitions and a special type of racial flexibility in racial adaptation and understanding.

Rockquemore's (1999) exploration into multiracial identity found that biracial identity development tends to be more fluid than it is static and opined four racial self-identity options. With a *singular or traditional identity* the individual is aware of their parents' monoracial status and consciously decides to exclusively identify as one race. An individual holding a *border identity* understands their biracial status and chooses to highlight this fact by solely self-identifying as biracial. With a *protean identity* the mixed-race person chooses to freely move between racial groups, identifying as biracial in some social contexts and monoracial in others. The *transcendent identity* individual claims no racial identity and ignores racial categorization unless pressured to identify their race. These identification options consider the effects socialization has on racial identity that is often dependent on differing demographic regions and political conventions and ideations.

These biracial identity development models have significantly progressed over time and pointed to the interaction between the individual and the socio-political context. They are imperative in understanding the unique and complex processes for individuals in forming a biracial self-identity. Despite the improvements of RID models for biracial individuals in the 1990s, models that encompass those that are multiracial versus biracial have not been clearly developed and point to a new need in the field.

Psychological Research into Biracial Identity Development

In the research literature prior to the mid-1980s, the term *biracial* was primarily used to mean "more than one race" within groups (e.g. a "biracial sample" indicated the studied population was composed of both White and Black individuals) rather than the experience or characteristics of individuals who came from a biracial background. Additionally, all the studies found looked only at African American and White as homogenous racial categories; other racial/ethnic groups were not represented.

In the late 1980s and early 1990s, the terms *biracial* and *multiracial* became associated with the idea of individual identity. The earliest studies appeared most frequently in feminist-oriented journals. However, while RID quickly became an important theme throughout the 1990s, there were still only a few studies looking at biracial experience. For instance, Kerwin, Ponterrotto, Jackson, and Harris (1993) explored how biracial identity is formed in children using qualitative interviews; Root (1998) offered a preliminary report on a mixed-methods study, *The Biracial Sibling Project*. Both these widely cited studies examine the

variability of the lived experience of being biracial as well as the impact of the larger cultural context, highlighting experiences of racism and the need for a term not imposed from the more dominant culture.

In the 2000s, the research has continued to delve into more specific areas of biracial identity, such as different ethnic identities (e.g. Asian and Hispanic) and gender differences. Rockquemore, Brunsma, and Delgado (2009) note that particularly after the change in the US Census in 2000, new quantitative data sets became available to researchers, leading to increasingly detailed understandings that biracial RID is highly idiosyncratic and contextually influenced. The authors analyze the assumptions that underlie race research, and the ways that biracial individuals illuminate or challenge them. The authors also critique the research generally as created out of the assumptions we make as a culture about race, including race as a social construct and an increased awareness of the impact of experiences of racism and discrimination. In addition, they emphasize that distinction must be made between an individual's racial identity (or self-understanding); racial identification (how others understand and categorize an individual); and racial category (what racial identities are available and chosen in a specific context).

Another major influence recognized in current theory is the cultural differences in conception of the self that some racial identities may bring, as in the interdependent orientation found in many Asian cultures (Lou, Lalaonde, & Wilson, 2011); the individual who is reconciling identities with very different cultural orientations may have a different experience of identity construction overall.

Trends in the research appear to be moving toward redefining the idea of race in line with changing social norms; studying biracial individuals from a variety of racial groups, as well as individuals who come from two minority groups; and developing further understanding of the ways in which cultural context and other identities impact racial identity formation.

Conclusion

Our psychological understanding of biracial identity has been heavily influenced by the socio-political context that surrounds the field. Racial identity models have reflected historical changes, and have shifted focus from the pathology of the biracial individual to the impact of external factors and the intricacies of identity development. Established racial identity models have not been empirically tested, and there is yet to be clear theoretical conceptualization regarding the multiracial individual and the children of the biracial baby boom. Research in this area may be wrought with political ramifications given the racial tensions of our society, but it is important nonetheless for the growing demographic of biracial and multiracial individuals.

See Also

Maria Root
Monocultural vs. Multicultural

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Social Class

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Conceptualized and Categorized

Social class may be defined as a social category that differentiates an individual's access to available material resources because of the individual's education, occupation, and income (Liu, 2011). Recent scholarship suggests that, along with objective access to material resources, social class is related to one's subjective perception of relative social-class rank in relation to others within one's settings and context. These ranking processes likely take place across an individual's immediate social circle, local community, and broader society (Piff et al., 2010). Subjective approaches to social class have been shown to be robust variables in research. Health psychologists found, for instance, that asking participants to rank themselves on a social-class ladder about their perceived status was a better predictor of subjective health than variables such as education, income, or occupation.

This contemporary contextually sensitive approach belies the decades of research focused on identifying innate personality differences between the rich and poor. Auld (1952) reviewed a series of studies examining response differences on personality inventories among individuals of different social classes. Middle-class participants scored more favorably than lower-status participants. Furthermore, results from the Berneuter Personality Inventory found lower scores of neuroticism, higher scores of self-sufficiency, and higher scores of dominance among upper-class participants. Individuals from economically underprivileged backgrounds also trended toward personality patterns described as maladjusted. Social-class studies using the Brown Personality Inventory suggested lower-class children scored overall less favorably on traits of insecurity, neuroticism, and irritability. Similarly, the California Test of Personality, Wisconsin Scale of Personality Traits, and Minnesota Multiphasic Personality Inventory showed higher-status children scored more favorably than those of lower-status particularly in domains related to emotional stability.

Likewise, Eysenck (1961) and Eysenck and Eysenck (1970) directly investigated personality differences between social classes. The researchers suggested middle-class individuals

possessed a higher degree of mental stability than those in the lower-working class. Additionally, those in lower classes scored higher in traits of neuroticism and psychoticism. Eysenck (1961) reported lower-class individuals were high in emotional instability and neuroticism. However, tough-mindedness was found to be higher among working-class lower-status participants. Eysenck and Eysenck (1970) later examined personality traits in a criminal population and found higher scores in traits of psychoticism and neuroticism. Other research found upper-class individuals to demonstrate higher intellectual flexibility, endorse less authoritarian values, be more open to change, report higher self-concept, and possess more general positivity about the world (Kohn & Schooler, 1969). Kohn & Schooler (1969) found that individuals from upper-social class backgrounds were more likely than lower-class individuals to endorse valuing self-direction and concern for internal psychological processes compared to conformity and concern for external appearances in childrearing. Rather than identifying the contextual and situational variables related to the individual differences and personality, researchers of that time tended to conflate "lower-class" as synonymous with deviance and vice-versa for those in middle- and upper-social class groups.

Cross-Cultural Considerations of Social Class

Race, gender, and social class have been intimately tied together for centuries to marginalize non-White, male, Christian groups and individuals (Liu, Hernandez, Mahmood, & Stinson, 2006). In mid-twentieth-century research, deviance from White norms and expectations were ascribed to lower-class individuals, particularly pertaining to those from non-White backgrounds. Some researchers described Whites to generally possess "better personality adjustment" when compared to African Americans.

Some scholars of the time recognized racist and sexist attitudes embedded within social structures might facilitate the negative psychological outcomes observed in studies including low self-esteem, rage, and helplessness in systemically disempowered peoples. But the tension between essentialist and contextual considerations of differences continued. For example, Battle and Rotter (1963) investigated the interaction of social class and racial groups for a generalized personality variable called internal-external control attitudes, or the degree of acceptance for personal responsibility. In general, middle-class children significantly endorsed internal control attitudes than lower-class children; however the lower-class Black children significantly endorsed the highest external control attitudes among all groups. Although the researchers were aware that external control attitudes reflected in large part the systemic racism and reduced sense of agency in which these children lived, words used to describe the internally controlled children included positively connoted words such as *mature*, while words to describe those endorsing externally controlled attitudes included *alienated* and engaging in *defensive reactions*. More recently, Twenge and Crocker (2002) conducted a meta-analysis of race differences in self-esteem that might support the influence of a cultural social structure context influencing individual trait variables. The authors found White self-esteem differences compared to Hispanics, Asians, and American Indians to be smallest in childhood and increasing with age, possibly due to the growing awareness and importance people place on social class throughout the life span.

However, Black self-esteem increased relative to Whites over time and was first observed during the 1980s, broadly reflecting the changes in civil rights occurring throughout the country at the time.

Mental Health Disparities and Social Class

Social class has been shown to be associated with various physical and mental-health outcomes. Scholars speculate that social class may predict one's physical and mental health in that there is a gradient wherein the higher one is on the social class and economic hierarchy the individual has better overall health. While it is accurate that those in higher social-class groups may have better access to resources and health care, scholars have challenged the assumption that those in higher social classes are without mental-health concerns. Levine (2006) writes about the negative mental-health outcomes associated with growing up in wealthy, privileged backgrounds. The author discusses pressures for achievement in academic, financial, and occupational domains all contribute to mental-health issues such as anxiety and depression. Additionally, Levine (2006) describes the negative mental-health effects of materialistic value orientations and parents that over emphasize externalized goals in their children related to wealth, material possessions, status, and popularity. Similarly, research on affluent adolescents suggests that there are psychological costs to living in material wealth, and that for some wealthy adolescents part of that cost may be increased addictive behaviors.

Shift to a Contextualized Social Class Personality Perspective

Recent researchers embraced the emphasis on subjective experiences and context as an important factor in explaining social class and the personality traits and behaviors of others. Kraus and Keltner (2013) investigated different attributional styles of individuals from different social classes, hypothesizing individuals from upper-class and lower-class ranks would divergently explain individual attributes of others. Specifically, the authors noted individuals from upper-class ranks are more likely to endorse essentialist explanations (i.e. biological, genetically based explanations for social class) for social class categories. Differences in education and income, common objective indices of social class, were also more likely to be endorsed as biologically derived by individuals from higher social class backgrounds. Individuals from upper-class ranks were also more likely to endorse beliefs in meritocracy and in a just world. Conversely, lower-class individuals were more likely to endorse that social class was changeable and derived from external circumstances. These contextual explanations provided by individuals from lower-class backgrounds has been hypothesized as a means for explaining the decreased sense of control lower-class individuals feel in their daily lives (Kraus, Piff, & Keltner, 2009). Additionally, Kraus, Cote, and Keltner (2010) found that these external explanations more readily associated with individuals from lower-class backgrounds also enabled an increased capacity to demonstrate empathic accuracy and judge the emotional states of others. Piff et al. (2010) hypothesized lower-class individuals respond to the feelings of decreased sense of control, reduced

access to resources, and increased exposure to potential threat by demonstrating more prosocial behaviors as a strategy to adapt to their hostile environment. Across four separate studies, participants identified as lower in social class demonstrated more prosocial behaviors including generosity, charity, trust, and helpfulness than participants with higher social class backgrounds.

Other research illustrates the importance that subjective social class contributes to social-class perspective of others' characteristics. Individuals from upper-classes are commonly perceived as possessing greater competence, self-discipline, sophistication, and desirability while the opposite holds for individuals from poor backgrounds. Kraus et al. (2009) found when participants rated themselves high on a social-class ladder representing society, they were more likely to attribute external circumstances as based on individual traits or dispositions compared to lower-class ranked participants. A later series of seven studies (Piff et al., 2012) showed across various experimental and naturalistic settings individuals from higher-class backgrounds engaged in more unethical behaviors such as breaking the law while driving, engaging in unethical decision making, taking valued goods from others, lie in negotiation situations, cheat to increase potential rewards, and endorse unethical behaviors at work than individuals from lower-class backgrounds as a result of higher endorsed attitudes towards greed.

Finally, Jost (Jost, Banaji, & Nosek, 2004) and colleagues have shown via system-justification theory that being from a social-class position (e.g. lower-social class) may mean that the individual might vote for policies that are against the individual's best interest. In system-justification theory, the lower-social class individual is within a dominant system and to rationalize the individual's lower-social class situation, she/he may subscribe to the beneficence of the system. This within group variability suggests that the categorical approach (e.g. grouping individuals in to social-class groups like middle-class) has limited utility. From the research there is meaningful and significant variability in personality and individual differences related to social class and classism. Moving beyond essentialist theories of innate differences due to social-class group is important for future scholarship. Social class, socioeconomic status, and classism are contextual and situational but impact the worldviews, values, and personality of individuals.

See Also

Personality in Culture
Social Class

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Cultural Encapsulation

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In our everyday life, we naturally seek homogeneity for comfort and predictability by avoiding difference and change. How much we can control our exposure to difference and change can vary, depending on factors such as politics, social privilege, socioeconomic status, and profession, just to name a few. Counselors are no different. In 1962, C. Gilbert Wrenn coined the term *cultural encapsulation* to emphasize the natural tendency of counselors to be bound by culture and time to avoid difference and change that results from cross-cultural exposure and societal development.

The term *encapsulation* conjures up the image of a cocoon or shelter that is slowly developed over time to preserve and protect attitudes, beliefs, and assumptions (Heppner, Wang, Heppner, & Wang, 2012). Wrenn stated "...we protect ourselves from the disturbing reality of change by surrounding ourselves with a cocoon of pretended reality – a reality based upon the past and the known" (1962, p. 445). The process can happen in an unconscious manner, pulling from a human need for self-preservation, and may be implicitly agreed upon across counselors and the field in general. Wrenn (1962) warned that encapsulation allows the counselor to hold cultural assumptions and stereotypes while simultaneously being guarded from the uncomfortable confusion of cultural difference and a threatened worldview. He further warned that this process could have negative effects on the quality of counseling.

Wrenn (1962) discussed three variations on cultural encapsulation in his original essay. The first is "the tendency to be surprised or even unbelieving regarding changes in truth" (p. 446). Counselors can gradually establish a belief in stable truths based on cultural and generational factors that are hard to modify in the face of change. The danger is that the counselor is not able to adapt to change and may generalize their beliefs to the clients' experience despite cultural or generational differences. The second variation is "the cushioning of the counselor in some academic cocoons which have little reference to our total culture" (p. 447). While counselors develop shared assumptions of human behavior during training and professional practice, these assumptions may not be applicable to all settings

and situations. The third variation is "the assumption that the counselor may safely draw upon his own education and vocational experience in counseling" (p. 448). The counselor inevitably refers to his or her past when attempting to assist with the client's future, failing to account for the rapid rate of current change.

Furthering the concept in 1985, during the War on Drugs and the ever-present fear of nuclear war, Wrenn identified two common reactions to societal changes that can lead to encapsulation: hopelessness and denial. Hopelessness about the world can manifest in thoughts that the problem is too big for an individual to influence, too advanced to stop, or too complex to understand. Denial of the reality of change can take the form of thoughts that the change cannot be true, it is highly exaggerated, or that it will just get better with time. Hopelessness and denial can serve as a self-constructed cocoon to protect the individual from the stress and ambiguity change elicits.

In addition, Wrenn asserted that cultural encapsulation permits the counselor to be insensitive to cultural variations on reality, perpetuate cultural stereotypes without proof, avoid consideration of alternative worldviews, and remain complacent in their own cultural values. Consequently, counselors can believe that the Western model of mental health applies to all cultures and that existing counseling techniques should work across individuals, and may risk pathologizing culturally different individuals and forcing treatments that could be harmful. This dynamic results in a decrease in the effectiveness and credibility of the field.

Sanchez (2001) describes a paradox in treating clients who are culturally different from the counselor, in that the counselor is ethically bound not to work with clients outside of their competence, but it is impossible to refer every client with whom the counselor is culturally different, nor is it possible to be knowledgeable in the intricacies and nuances of every culture. The first step in avoiding encapsulation is recognizing and acknowledging one's own cultural background and subjective viewpoint. Rather than making broad assumptions about clients based on gross stereotypes or attempting to minimize between-group differences, Sanchez suggests that broad cultural references may be treated as a point of inquiry, or an invitation to a cultural dialog.

Despite its revisions over the years, the APA Ethical Principles and Code of Conduct itself is encapsulated within the beliefs, practices, and assumptions of a specific majority culture (LaFromboise & Foster, 1989). While the document has been improved since these criticisms were made, it still lacks the language called for by Pedersen and Ivey (1987), who recommended that the code speak to the need for recognition of socio-cultural differences in all endeavors of research, writing, and practice.

The concept of cultural encapsulation has been utilized in the field of multicultural counseling for over five decades to signify the innate risk of stereotypes and ethnocentrism (LaFromboise & *Foster*, 1989; Pedersen, Crethar, & Carlson, 2008), but it has yet to be empirically examined. Since 1962, the field of psychology has come to an agreement that awareness and understanding of cultural differences is an essential component of counselor training and practice. Research in the field has also seen many advances in our knowledge of how human difference affects behavior (Jim & Pistrang, 2007). Yet, with the increasing changes in globalization, technology, and identity, the concept of cultural encapsulation may be more applicable, and potentially problematic, today than ever before.

See Also

Cultural Specific Therapies
Monocultural vs. Multicultural

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Machismo

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Machismo is a concept that continues to defy a clear definitional description. Vaguely, *machismo* denotes a "typical" masculine gender role behavior exhibited by Latino men, in particular men in Mexican culture (Torres, Solberg, & Carlstrom, 2002). Definitions of *machismo* vary from "an ethos comprised of behaviors prized and expected of men in Latin American countries" (Panitz, McConchie, Sauber, & Fonseca, 1983) to "Mexican men's manifestation of perceived male characteristics, both positive and negative" (Arciniega, Tovar-Gamero, & Sand, 2004). Traditional perspectives and interpretations of *machismo* are associated with negative characteristics of sexism, chauvinism, and hypermasculinity. Stereotypical traits associated with the concept include: violent, aggressive, womanizing, controlling, rude, prone to alcoholism, emotionally withdrawn, and domineering through intimidation. Moreover, traditional views and characteristics used to define and describe *machismo* are one-dimensional and restrictive, disregarding positive aspects of Latino male behavior.

Contemporary definitions challenge the one-dimensional and negative descriptions of *machismo*, highlighting positive behaviors and descriptors that resemble qualities associated with the word *caballerismo* (Arciniega et al., 2008). *Caballerismo* refers to chivalry, dignity, honor, respect, nurturance and protector (Arciniega et al., 2008). *Caballeros* are family centered, honor and protect the *familia*, and are emotionally responsive and communicative. Ultimately, *machismo* is a multidimensional concept, operationalized along a continuum of not only individual power and hypermasculinity but also subtle covert beliefs and attitudes related to social responsibility and emotional connectedness.

The origins of *machismo* are thought to derive from the Spanish conquest and the conquistadores' exploitation of natives. *Machismo* is said to be the by product of the endured humiliation experienced by indigenous men during the conquest, given the violence and subjugation that occurred during colonization (Hardin, 2002). In particular, as the invading conquistadores systematically violated indigenous women, they instilled European racial superiority over indigenous men who were not able to protect their female kin (Hardin, 2002).

Claims are made that during the colonization period, in order to compensate for physical and cultural defeat, indigenous men took on macho attitudes and behaviors as an attempt to regain some form of dignity and honor after their emasculation and feeling of inferiority, powerlessness, and defeat by the conquistadores (Hardin, 2002). The term *machismo* is believed to originate from the Spanish *macho*, indicating "male." The word "*macho*" is said to have roots in the classical Nahuatl language of the Aztecs of central Mexico, indicating "image" or "reflection of myself" (Hardin, 2002). Similar to the term *machismo, caballerismo* originates in the Spanish word for horse and horseman – *caballo* and/or *caballero* (Arciniega et al., 2008). Thus, the word *caballero* referenced a land-owning Spanish gentleman of high status and master of *haciendas* (i.e. ranches) (Arciniega et al., 2008). *Caballerismo* also refers to a code of masculine chivalry, stemming from the original Latin root *caballus*. Over time, the development of the term *caballero* evolved to signify a Spanish gentleman displaying appropriate and respectful behaviors, adhering to an ethical code of chivalry.

Machismo: An Overview

Machismo can be understood as a socially constructed, learned, and reinforced set of behaviors and customary roles comprising the content of male gendered roles in Latino culture. As a result, *machismo* can be understood as impacting identity and behaviors. Simply, *machismo* is the socially expected and approved way of being a Latino man. Broadly, *machismo* has been understood and portrayed as a cultural and social ailment believed to cause violence and alcoholism (Arciniega et al., 2008). Likewise, *machismo* is widely regarded as culturally specific behavior associated with chronic poverty, laziness, and other ethnic and class-based prejudice (Torres, Solberg, & Carlstrom, 2002). In everyday life, the system of *machismo* is reinforced through ideals and practices of fearlessness, power and control over women, and sexual dominance.

Traditional practices that perpetuate *machismo* are associated with behaviors that physically and psychologically harm women in the process of proving one's manhood (Pardo et al., 2012). However, modern practices that are positive conceptions of *machismo* are associated with standing up for one's family, meeting kinship obligations such as financial support, and protectiveness toward one's family (Estrada & Arciniega, 2014). Most recent examples of *machismo* date back to the ethnoindustry launched during the Golden era of Mexican cinema during the 1950s and the Chicano movement of the 1960s and 1970s (Falicov, 2010). Although the Golden era of Mexican cinema and the Chicano movement perpetuated stereotypes of *traditional machismo* by making the Mexican *bandido* (bandit) an iconic cinema figure and by initially sidelining women in the struggle for Mexican American civil rights and empowerment, it also created space for scholars to push for a more complete and nuanced understanding of *machismo* and Latino cultural norms (Falicov, 2010). Having a more complete understanding of *machismo* may expose younger Latino men to fluid gender roles during their upbringing, thereby experiencing less cultural and social pressure to assert their masculinity by exemplifying dominance over women.

The literature supports the notion that *machismo* is a multidimensional construct comprising of both *traditional machismo* and *caballerismo* behaviors and characteristics

(Arciniega et al., 2008). The dimension of *traditional machismo* is related to aggression, antisocial behaviors, hypermasculine traits such as sex-role dominance, high levels of alexithymia, and more wishful thinking as a coping mechanism. However, the dimension of *caballerismo* is related to affiliation, ethnic identity, problem-solving coping strategies, emotional responsiveness, and elements of nurturance and family centeredness. Additional traits associated with *caballerismo* include assertiveness, sincerity, and responsibility. Not surprisingly, *traditional machismo* has been linked to lower levels of psychological well-being, life satisfaction, and dysfunctional coping approaches such as drinking and fighting (Arciniega et al., 2008). Further, *traditional machismo* has been shown to relate to more negative images associated with *machismo*. Contrary, research related to *caballerismo* identifies higher levels of psychological well-being, life satisfaction, positive self-esteem, and ability to understand one's own and the emotions of others (Arciniega et al., 2008). Latino men who exhibit *traditional machismo* traits and attitudes are prone to higher levels of depression and negative attitudes toward mental health treatment compared to men who display characteristics and behaviors of *caballerismo* (Fragoso & Kashubeck, 2000). Moreover, there is compelling evidence that *traditional machismo* leads to lower levels of marriage satisfaction and higher levels of stress. On the contrary, *caballerismo* has been documented as a protective factor for Latino men serving as an outlet for emotional expression and a guard against stress. These findings presented provide a critical step in empirically understanding the construct of *machismo* and how it operates in the lives of Latino men.

The Future of Machismo

The unique historical context of much of Latin America combined with the manifestation of Latino cultural values and scripts, make *machismo* a Latino male cultural-specific gendered experience, in particular with Mexican men. The existence and longstanding and deeply engrained set of beliefs, behaviors, and attitudes associated with Latino male masculinity posit *machismo* as a negative stereotype dominated by negative traits. However, most recent research and argument is that of *machismo* as multidimensional, consisting of both negative (traditional *machismo*) and positive traits (*caballerismo*). Further, exploring *machismo* from a multidimensional perspective will broaden the set of traits of interpersonal characteristics and personal lived experience with oppression, prejudice, marginalization, and social injustices. Having a more comprehensive understanding of *machismo* will filter some of the negative traits and highlight the more positive. Moreover, exploring how *machismo* operates in the lives of not just heterosexual men but also gay men will also allow for a more inclusive and complete understanding. Thus, current and future ideology of *machismo* should be extended to include factors such as socioeconomic status, women's advancement and participation in public arenas and the workforce, male responsibility in domestic spaces, and level of education to explain some of the variance. Given the varying stance on the construct of *machismo*, the challenge moving forward is to better understand how *machismo* may manifest itself in the lived experiences of diverse groups of Latino men, the systems of *machismo*, and *machista* attitudes.

See Also

Gender Differences in Perceived Personality Traits of Men and Women
Marianismo

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Marianismo

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Overview

Marianismo was first introduced in the early 1970s in the field of political science to describe Latinas' gender role expectations and norms (Stevens, 1973). Psychologists and other social science scholars have since studied marianismo to better understand its impact within the Latino cultural value system. This line of research has shown that marianismo is associated with negative mental-health outcomes, gender-based violence, and risky sexual behaviors (Moreno, 2007; Pina-Watson, Castillo, Ojeda & Rodriguez, 2013). According to its definition, marianismo expects Latinas to be submissive to men, humble, endure sacrifices and suffering to maintain the family (Castillo, Perez, Castillo, & Chosheh, 2010). Another important component of marianismo is to see the Virgin Mary as their role model. Hence, Latinas must to stay pure and asexual until marriage (Castillo & Cano, 2007).

Marianismo and machismo have distinct differences within the gender role literature. For example, machismo is characterized by sexism, chauvinism, and hypermasculinity. Stereotypical machismo behaviors include, violent, aggressive, womanizing, controlling, rude, prone to alcoholism, emotionally withdrawn, and domineering through intimidation (Arciniega et al., 2008). Conversely, marianismo is about restricting Latinas from engaging from sexual behaviors before marriage and ascribed to more traditional gender roles such as remaining pure until marriage and being in charge of child care (Castillo & Cano, 2007). Scholars have questioned the sexism perpetuated within marianismo and have asked for more empowering gender roles. *Hembrismo* is less a common gender role and more widely accepted by Latina feminists because characterizes Latinas as strong, resilient, and confident women (Ruiz, 2005).

Scholars studying Latinas/os argue that the cultural value of *familismo* is influential in the behaviors of Latina girls and women (Rafaelli & Ontani, 2004). Familismo draws from a collectivistic worldview and is defined as a person's strong attachment and commitment to their immediate and extended family (Triandis & Trafimow, 2001). The needs of the family

take priority over the individual's. Within the Latino culture, familismo expects women to remain close to their families, be supportive in multiple ways, procreate, take care of their children, and take responsibility of household chores (Castillo, Perez, Castillo, & Chosheh, 2010). Qualitative studies have provided insightful information on how marinismo may be transmitted in families. In a study looking at marianismo and sexual activity among immigrant Salvadorean mothers and daughters living in Canada, it was found that mothers actively discourage their daughters to engage in sexual intercourse and mainstream women's sexual health activities (Carraza, 2013). The author suggested that perhaps the intersections of Latino culture, gender roles, and religion may have influenced both mothers and daughters to value of female chastity.

Owing to the importance of marianismo in the literature, measurement studies have led to the development and publication of the Marianismo Beliefs Scale (MBS; Castillo, Perez, Castillo, & Chosheh, 2010). The MBS consists of 24-item scale consisting of five subscales, family pillar, virtuous and chaste, subordinate to others, self-silencing to maintain harmony, and spiritual pillar. Each item is scored using a four-point Likert scale ranging from 1 strongly agree to 4 strongly disagree. The MBS currently has an adult and adolescent version, and may be used with both male and female participants. Studies looking at the psychometric properties of the MBS have concluded that the scale has acceptable reliability coefficients and convergent and discriminant validity with college and adolescent samples (Castillo, Perez, Castillo, & Chosheh, 2010; Sanchez, Whittaker, Hamilton & Zayas, 2016). Another instrument used to assess this gender role in Latinas is the Guzmán Marianismo Inventory (GMI; Guzmán, 2011). The GMI has 18 items using a four-point Likert scale ranging from never true of me to always true of me. The inventory has three subscales including, traditional marianismo, familismo, and servant leadership. Despite the strong psychometric properties of the GMI, it is not widely used in the Latina/o Psychology literature. Research on marianismo has flourished and psychometrically sound instruments are readily available for scholars interested in this topic. The following section provides a brief synopsis on research about marianismo and its association with academic performance, mental-health outcomes, and risky sexual behaviors among Latino diverse samples.

Psychosocial Correlates of Marianismo

Academic Achievement

Studies focusing on Latina/o cultural values have led to important findings. Owing to their significant representation in the US educational system, researchers have investigated how cultural values may influence Latinas/os succeeding academically. Positive aspects of marianismo have been found to be a strong predictor of academic motivation. In a study looking at the influence of marianismo on the academic achievement among Latina adolescents, it was found that the spiritual and family pillars subscales of the MBS were significantly correlated to academic motivation (Rodriguez, Castillo, & Gandara, 2013). In their study, Rodriguez and colleagues (2013) argue that based on their results having a strong connection with a higher power and familial ties assisted Latina adolescents in their academic pursuits. Other studies suggested that marianismo is not a predictor of academic success

among Latina students. In a study with adult Latina women, Melendez (2005) found no significant relationships between marianismo and level of education, acculturation, social economic status, and conflict. The contradicting evidence about marianismo and academic achievement deserves serious attention, as Latinas are outnumbering Latinos in attending and graduating from college (Zarate & Burciaga, 2010).

Depression

The association between marianismo and psychological distress has been the focus of the vast majority of the research on this topic, leading to mixed results. In a study with Mexican American preadolescent girls, Sanchez and colleagues (2016) found no relationship between marianismo beliefs and depressive symptoms. The authors argued that in traditional Latino families, adolescent girls are conditioned to follow the rules and not ask questions. Thus, they may not be aware of marianismo or how it may affect their psychological well-being. Conversely, Pina-Watson and colleagues (2013) found a strong positive relationship between marianismo beliefs and depressive symptoms in a sample of Mexican American college women. They also reported that this relationship was mediated by parental conflict. Latinas in higher education often see how college facilitates their explorations of ethnicity, cultural values, sexuality, and other dimensions of self-identity. These processes may often create crises that may lead to psychological distress. Latina college students struggle between wanting to fully express their multiple identities and what is expected from their families, especially their parents. Lastly, married adult Latina women who endorse marianismo behaviors such as self-silencing and self-sacrificing report significant higher levels of depression (Vazquez, 1998). Owing to the alarming rates of depression and suicidality, especially among young Latinas, future studies on marianismo must continue to disentangle how gender roles may influence the psychological well-being of this group of women (Romero, Edwards, Bauman & Ritter, 2014; Zayas, 2011).

Sexual Behaviors

The scholarship on the effects of marianismo on sexual behaviors is increasing. Studies on gender socialization show that Latinas are brought up with stricter rules about sexual behavior, desire, and satisfaction. The rigid messages regarding female sexuality may lead Latinas to potentially engage in risky sexual behaviors or not have fulfilling sexual relationships with their partner (Hussain, Leija, Lewis, & Sanchez, 2015; Rafaelli & Ontani, 2004). In a study looking at sexual behaviors among Latina preadolescents, researchers found that negative aspects of marianismo (i.e. being virtuous/chaste, maintaining virginity) were negatively associated with sexual attitudes and precursor behaviors (Sanchez, Whittaker, Hamilton, & Zayas, 2016). Similarly, other scholars argue that Latina women may experience internal conflicts between the rigid sexual morals instilled from their families with their sexual pleasure and satisfaction leading to psychological distress (Hussain, Leija, Lewis, & Sanchez, 2015). Sexual health is critical in the prevention of sexually transmitted

infections among Latinas and other women of color. Marianismo remains an important gender role mechanism that needs to be included in future prevention and interventions programs targeting sexual behaviors in Latinas living in the United States.

Future Directions

The scholarship on marianismo is growing and more studies are urgently needed. As the Latina/o population continues to grow and becomes more diverse, our understanding of gender roles remain important variables to consider in future research. The goal of such studies will be to provide innovative ways to develop and test culturally targeted interventions for Latinas across different ages and level of education.

See Also

Gender Differences in Perceived Personality Traits of Men and Women
Machismo

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Visible Racial/Ethnic Group (VREG)

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The term *visible racial/ethnic groups* (VREGs) was coined by Janet E. Helms and Donelda A. Cook in 1988, as alternative nomenclature for African, Latinx, Asian and Pacific Islander, and Native/Indigenous Americans (ALANA). The field of multicultural psychology has consistently made language changes for designating the various racial/ethnic groups in the United States. During the 1960s and early 1970s, the psychological research examining racial differences in populations referred to research participants as "Whites" and "non-Whites." In the late 1970s, there was movement away from the term, "non-Whites," as it suggested that persons of African, Latin, Asian, and Native/Indigenous Americans descent were only recognized in being counter to "Whites" as the dominant racial group, and results of any differences from Whites were interpreted as deficits. Thus, the terminology of "racial/ethnic minorities" came in use, acknowledging racial/ethnic group people as fewer in number than White people in the United States, but also acknowledging that they reflected valid cultural identities and worldviews stemming from countries of their ancestral origins, separate and apart from White European cultural identities.

Helms and Cook began using the term "visible racial/ethnic groups" (VREGs) in place of racial/ethnic minorities, as the respective minority and majority status designations for VREGs and Whites continued to disempower and characterize VREGs as deficient in comparison to White societal standards. Minority and majority labeling reinforced existing socio-political and socioeconomic racial differences in the United States. Even in locations where Whites are in the numerical minority, and either African, Latina/o, Asian and Pacific Islanders, or Native/Indigenous Americans are the numerical majority, Whites maintain the power and privileges of the "majority" in educational, economic, legal, and political societal practices and institutions. The potential exists for VREG and White individuals to internalize the power dynamics inherent in the designated use of the identity labels minority and majority, thus perpetuating societal inequities.

Helms and Cook also considered "visible racial/ethnic groups" as an alternative to the term *people of color* (POC). People of color recognizes that in the United States socio-racial group designations are assigned to persons based on differences in visible physical characteristics such as skin color, hair texture, eye shape, and other facial features. However, language use is another visible distinguishing characteristic for Latina/o persons that the term POC does not capture, particularly for White Latina/o individuals. White-skinned Latina/o individuals may be subject to similar discriminatory attitudes and practices as individuals of African, Asian, Pacific Island, and Native/Indigenous American descent, as their language accents, preferences, and fluidity of one or more languages spoken in the home or community, and English-language fluency are visible identifying characteristics, which distinguish them from "White European Americans."

In the 1990s, as researchers began recognizing and investigating within racial/ethnic group differences, convenience terms like VREG, ALANA, and POC connoting the larger racial/ethnic group designations used by the US Census Bureau, did not adequately reflect the variability within African, Latina/o, Asian and Pacific Islander, and Native/Indigenous Americans. With an increase in immigrants from VREG countries, psychological research benefited from an increase in participants from separate racial/ethnic groups that provided the opportunity to study within group differences rather than between racial/ethnic group differences. Differences have been found to exist in the variety of national ancestries and countries of birth, length of residence in the United States, and migration or immigration history and generational status, within each of the aforementioned racial/ethnic groups. For example, the racial/ethnic identification term of "African Americans or Blacks" used by the US Census Bureau, assumes similarities between persons of African descent who voluntarily immigrated to the United States as adults, those whose ancestors were involuntarily brought to the United States and sold into slavery, and Afro-Caribbeans whose ancestors either migrated to a Caribbean country or had differing history of enslavement in those countries from the United States. These historical racial histories, social-cultural and political backgrounds of present-day "African Americans or Blacks" have implications for various within racial/ethnic group differences. Thus, the use of the term visible racial/ethnic groups began to diminish in the psychological literature.

The use of VREGs also diminished with increasing numbers of persons from multiracial backgrounds and recognition of the importance of intersecting identities. The 2000 US Census began allowing respondents to designate more than one race. Thus, the term VREGs did not capture multiracial and multiple ethnicity identities and the corresponding intersecting cultural characteristics of persons from more than one racial/ethnic group. While the demarcation of *visible* in the term *visible racial/ethnic group* is still relevant to multiracial and multiple ethnicity identities, as physical features and language use may still be visible distinguishing identity characteristics, it does not capture the multidimensional constructs involved in multiracial identity. For instance, Harris and Sim (2002) examined the complexity of assessing a single racial identity among multiracial adolescents. They found adolescents to report "multiple context-specific racial identities" along several contextual dimensions. Harris and Sim describe "internal racial identity" as how one self-identifies one's race, which may vary across contexts of social environments (e.g. with family, with peers, in school), "external racial identities" as how observers perceive that same individual's race, and "expressed racial identities" referring to the words and

actions used toward individuals based on observers' attitudes about that individual's perceived race. While the term *visible* remains relevant in how an individual sees one's self and how others see that individual, the identifying racial designation is fluid, and the fluidity is based on both the individual's identification with one's ancestral cultural values, behaviors, and worldviews and the individual's response to internalized racism or socialized negative conceptions of one's self – and other – identified racial group(s).

While the term VREG may not capture variations within each of the identified racial/ethnic groups, it still remains an important distinction between VREGs and the European American/White population. When an immigrant comes from Eastern Europe, the immigrant is not immediately recognized as an immigrant if he/she does not dress fundamentally differently from their American counterparts. However, when an immigrant comes from Africa, Latin America, or Asia, or when Native/Indigenous Americans are in a city, they are immediately recognized as different from their White American counterparts. The expression "off the reservation" was a racist term directed at Native/Indigenous Americans who were not confined to a reservation, meaning that they were not where they were "supposed" to be. The capture of Native/Indigenous American children for the purposes of forcing them into boarding schools to "beat the Indian" out of the children without their parents' permission was based on the visual identifiability of these children (Tafoya & Del Vecchio, 2005). The internment of Americans of Japanese descent was a racist act, as the United States was at war with Germany and Italy as well as with Japan in World War II, but neither Americans of German nor Italian descent were subjected to mass incarceration as the Americans of Japanese descent were because German and Italian descent individuals were not visibly distinguishable from other White Americans (Mio, Nagata, Tsai, & Tewari, 2007). In recent years, the harassment of Americans of Latin American descent due to immigration status is largely based on the visual identification of those who "look" Latinx (Provine & Sanchez, 2011). Certainly, the injustice of "driving while Black" or "driving while Brown" is based on the visual distinction of Americans of African and Latin American descent from their White American counterparts (Mio, Barker, & Rodriguez, 2015). Mio et al. (2015) quote a student of theirs, who was an African immigrant driving in his neighborhood:

> The first week I arrived in this country, I was stopped by the police. He said I matched the description of someone spotted with a gun. He searched me and found nothing. I then inquired what the description was. The man they were looking for was Hispanic. The only matching aspect of our descriptions were that we were both wearing blue jeans. (p. 190)

Obviously, if this student were driving, the police could not see that he was wearing blue jeans, so the only reason why they stopped him was that he was identifiably Black.

Conclusions

VREG was a historical term used to distinguish persons of color from their White counterparts in the United States. This term was initially used for research purposes to determine the degree to which certain generalizations could be made about POC, who were visually

distinguishable from White individuals, but because the populations to which this term was referring became more and more complex due to immigration from a wider and wider range of individuals, use of this term became less in vogue. However, when discussing racism, it still is a useful term, as people of color are visually identifiable from ethnic White immigrants and still experience discrimination and racism based on this visual identifiability, such as in the experience of "driving while Black," "driving while Brown," and immigration status suspicion.

See Also

Racial/Ethnic Identity
Janet Helms

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Cross-Cultural Emotional Expression

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Emotion

Emotions are transient, biological, psychological, and sociological reactions to events that have consequences for our well-being and that potentially require immediate actions for survival. Emotions are immediate reactions to meaningful stimuli, are biologically resident, and are products of the evolutionary history of human beings. One class of emotions is called biological or basic emotions (Matsumoto & Hwang, 2012). This type of emotion entails immediate actions that are tied to physiological responses, expressive behaviors, and cognitive processes. These emotions are elicited along with physiological responses from the central and autonomic nervous systems. They are psychological because they involve specific mental processes required for the elicitation and regulation of response and direct mental activity, and they motivate behavior. These emotions are social because they are often elicited by social factors and have socially communicative meaning when triggered.

Emotions are rapid information processing systems. Situations related to survival such as birth, battle, death, and seduction have been present throughout our evolutionary history, and emotions aided in adapting to problems that arose rapidly with minimal conscious cognitive intervention. If we did not have emotions, we could not make rapid decisions regarding whether to attack, defend, flee, care for others, reject food, or approach something useful. For example, in a situation in which a person's friends sees his/her friends in the path of a speeding car and screams to alert them, that immediate reaction may be more efficient for his/her friends to escape from danger than describing the danger verbally. Another example involves the emotion of happiness, which is a core positive emotion that is crucial for well-being and social relationships. Smiling often immediately reduces the tension in social interactions with strangers, and happiness is the easiest way for people to express satisfaction. When a friend smiles after tasting something her friend has cooked, the cook no longer feels anxious about the success of her dish. Smiles often

mean no opposition. When a new neighbor smiles at the established neighbors, they tend to relax and feel that the newcomer is not a threat.

Research on Emotional Expressions on the Face

Conducting research in the field of emotions is not easy because doing so requires the presence or creation of factors and conditions to elicit targeted emotions, and manipulating the contexts to do so is not always possible or easy. Therefore, there is no perfect experimental context for producing emotions in research. Yet there has been a large number of studies that have demonstrated that the facial expressions of anger, contempt, disgust, fear, happiness, sadness, and surprise are universally produced when emotions are elicited spontaneously.

The face is one of the important and complex ways of expressing emotions, and one of the important original studies related to the universality of emotional expressions was conducted by Friesen (1972). In Friesen's cross-cultural study, 25 American and Japanese participants watched neutral and highly stressful films (first episode: body mutilation, second episode: sinus surgery) while their faces were recorded. The coding of the spontaneous facial behaviors that occurred indicated that the American and Japanese participants displayed emotions (e.g. disgust, fear, sadness, and anger) similarly when they were alone, which was assumed to be not affected by social influence. This study provided pioneering evidence that facial expressions of emotion were universally produced when emotions were spontaneously elicited.

Another representative production study was conducted in a naturalistic context. Matsumoto and Willingham (2006) examined the expressions of 84 judo athletes from 35 countries at the 2004 Athens Olympic Games, and reported that the first immediate emotional reactions on the faces of winners and losers at the completion of their final medal match were consistent with the prototypical expressions of the basic emotions. In particular, winners displayed genuine smiles while losers displayed negative emotions such as sadness, disgust, or anger. Genuine smiles are smiles that involve not only the smiling muscle (zygomatic major), which raises the lip corners, but also the muscles surrounding the eyes (orbicularlis oculi), which raise the cheeks, thin the eyes, and narrow the eye cover fold; many studies have shown that only these types of smiles are correlated with the experience of positive emotion (see Ekman, Davidson, & Friesen, 1990 for a review). In contrast, nongenuine smiles only involve the muscles around the mouth, and not the eyes (Ekman, & Friesen, 1978).

Although there were many other cross-cultural studies of facial expressions of emotion, this Olympic study was compelling for several reasons. The results were based on spontaneous, not posed, expressions. Many previous studies often had to deal with variations in basic emotions when testing posed expressions rather than using ones naturally produced in an appropriate emotional context. Also, this cross-cultural study included individuals from various countries at the Olympic games. Olympic matches can be considered a special situation, but they are part of everyday reality in signifying competitions among people, so the emotions of winners and losers of the Olympics are not different from winners and losers of any competition. The findings were meaningful

given that previous research documenting the universality of facial expressions of emotions had been mainly tested in laboratories, not in the field.

Emotional Expressions and Culture

Human culture is a unique meaning and information system, shared by a group and transmitted across generations (Matsumoto & Juang, 2017). One of the major functions of culture is to maintain social order, so culture creates rules, guidelines, values, and norms concerning the regulation of emotion. Unique human cognitive abilities (i.e. language, memory, and abstract thinking) allow cultures to elaborate on human emotions by facilitating the construction of culturally based emotions and their associated meanings.

Cultural display rules (and cultural decoding rules; Matsumoto & Ekman, 1989) are cultural norms and standards that socially guide how to behave and react in social contexts. These rules help us manage the appropriateness of emotional displays in social situations when there is the need to manage the appearance of certain emotions in particular situations. For example, in most cultures, laughing and giggling at a funeral ceremony is considered to be socially undesirable (Matsumoto, 1990). Display rules outline when, where, and how particular expressive behaviors should be displayed, and the rules vary depending on communities, societies, countries, contexts, and interactants. However, variation in cultural display rules does not mean that there are no commonalities. The variation is invaluable because it aids us in understanding how our spontaneous emotional reactions interact with cultural norms to manage expressions that facilitate the ability to develop social relationships.

There are six ways in which display rules can act to modify emotional expressions: (1) Express less than actually felt (Deamplification), (2) Express more than actually felt (Amplification), (3) Show nothing (Neutralization), (4) Show the emotion but with another emotion to comment on it (Qualification), (5) Mask or conceal feelings by showing something else (Masking), (6) Show an emotion when one does not feel it (Simulation). Because we gain knowledge about display rules directly and indirectly in our social lives, we naturally come to know how to manage our immediate emotional reactions. For that reason, emotions can be both universal and culture-specific. These rules are learned early and dictate how the universal emotional expressions should be modified in each culture according to the social situation. By adulthood, these rules are automatic, having been very well practiced.

In a study of display rules by Matsumoto (1990), American and Japanese participants saw two examples of six universal facial expressions of emotion and rated the appropriateness of displaying each in eight social contexts. Americans rated some negative emotions in ingroups, and happiness in outgroups, more appropriate than did the Japanese. The Japanese, however, rated some negative emotions as more appropriate to outgroup members. These findings indicated that members of collectivistic cultures (e.g. Japan) would be discouraged from expressing potentially threatening negative emotions to their ingroups, and potentially bonding positive emotions to their outgroups, while there would be no such tendency for members of individualistic cultures (e.g. the United States).

Application of Display Rules: The Display Rule Assessment Inventory

The Display Rule Assessment Inventory (DRAI) is a measure assessing behavioral responses based on the six response alternatives (discussed above) when people experience different emotions with family, friends, colleagues, and strangers (Matsumoto, Takeuchi, Andayani, Kouznetsova, & Krupp, 1998; Matsumoto, Yoo, Hirayama, & Petrova, 2005). The DRAI has been tested in over 30 countries, examining universal and culture-specific aspects to display rules, and linking the cultural differences to culture-level individualism (vs. collectivism). Despite the large potential range of scores, most countries' means on overall expression that were self-reported suggested a universal norm for the management of emotional expressions. Individuals of all cultures had a display rule norm for greater expressivity toward ingroups than toward outgroups, indicating another universal effect. Collectivistic cultures were associated with a display rule norm of less expressivity overall than individualistic cultures, suggesting that overall expression management for all emotions was central to the preservation of social order in these cultures. Individualism was also positively associated with higher expressivity norms in general, and for positive emotions in particular. Individualism was positively associated with self-reported expressions of all emotions toward ingroups, but negatively correlated with all negative emotions and positively correlated with happiness and surprise toward outgroups.

A more recent study (Hwang & Matsumoto, 2012) using the DRAI reported that Asian Americans and European Americans differently self-reported the expressivity and modification of their emotional expressions. Asian Americans endorsed the expression of their emotions less than European Americans, but endorsed the modification of their expressions more. However, perceived relationship commitment mediated the ethnic group variations on endorsed expressivity. European Americans had significantly higher scores on perceived relationship commitment than did Asian Americans toward parents, close friends, and older siblings, and these differences completely mediated the ethnic differences in display rules. This empirical evidence on the DRAI indicated that culture matters in displaying certain emotions in particular social contexts. Thus, being aware of and understanding cultural variations in displaying emotions in social contexts is important for better social communication and relationships.

See Also

Emotional Intelligence, Correlates of
Individualism vs. Collectivism

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Culturally Adapted Psychotherapy

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Culturally adapted psychotherapy refers to the tailoring and modification of mental health services for people of diverse backgrounds. It refers to the larger umbrella term of culturally adapted treatments, which includes the adaptation of both health and mental health services. Although these terms can also apply to other aspects of diversity (e.g. age, gender, sexual orientation, immigration, acculturation, and specific clinical or comorbid issues), the term generally refers to the adaptation of services for different ethnic groups. There are number of terms that refer or are related to culturally adapted treatments, including cultural modifications, cultural tailoring, cultural attunement, cultural competency, culturally sensitive treatments, and culture-specific therapies. Culturally adapting treatments are especially important because access, utilization, and disparities in the prevalence and outcomes of mental health treatment tend to be worse among different ethnocultural groups.

The culturally adapted psychotherapy evolved after the cultural competency movement, which highlighted the importance of being competent and effective when working with different ethnocultural groups. Cultural competency has been defined as consisting of three components: (1) cultural self-awareness, (2) knowledge of other groups, and (3) possessing the skills to effectively deliver services to ethnically and culturally diverse clientele (Sue, 1982). Although many cultural competency practice guidelines have been developed, they tend to be aspirational in nature and focus on general recommendations, leaving clinicians yearning for more practical and concrete advice when working with diverse groups. Culturally adapted psychotherapy may be one such resource for providing additional insight on how to make concrete clinical modifications to the therapy process.

The cultural adaptation movement has largely focused on culturally modifying and testing evidence-based treatments with ethnic minorities. This movement attempts to address and improve treatments to address health and mental health disparities. Whether "as-is approaches" are effective and sufficient in fully addressing the needs of diverse populations has been called into question. Moreover, the impracticalities (e.g. prohibitively time consuming, costly, and lead to therapist training difficulties, especially if they are based on different treatment models) of developing novel ethnic-specific treatments for each culturally

different group in the United States and internationally has been highlighted. Culturally adapting evidence-based treatments (EBTs) are seen as the most practical and cost-effective option to effectively address cultural issues in treatment.

The depth and extent to which cultural adaptation are made can vary. For example, adaptations can be more surface structure in nature (Resnicow et al., 1999) and focus on the modification of more simple and basic elements of treatment, such as providing ethnically matched therapists, conducting therapy in a client's native language, designing clinics to be culturally aesthetic and locating clinics in neighborhoods that are easily accessible. In addition, cultural adaptations can be deep structural adaptations that are more comprehensive and focus on incorporating various elements of culture (e.g. the ideas, beliefs, attitudes, and values) into psychotherapy. Some may consider that surface structure adaptations are not true cultural adaptations (and are merely demographic matching indicators that should only be labeled as such), and that deep structural adaptations are needed in order to truly address and tailor treatment needs for diverse populations. For example, just because a therapist is ethnically and linguistically matched with their client does not mean that they are culturally competent and know how to adapt and tailor psychotherapy to be effective with their clients. Unfortunately, deep structure adaptations are much more difficult to develop, and few frameworks exist for guiding such modifications. Nevertheless, deep structural adaptations have greater potential for increasing client engagement and improving outcomes.

More recently, a number of meta-analyses have shown that cultural adaptations confer additional treatment benefits for ethnic minorities. For example, Griner and Smith (2006) examined 76 studies and found a weighted effect size of .45, indicating that cultural adaptations provided a moderately strong benefit to improving outcomes. Unfortunately, many of these studies did not provide detailed information about how the interventions were developed or adapted. Moreover, 41% of the studies included were ethnic-specific service clinics that provided ethnic matching and linguistic services for diverse clientele. In addition, most studies did not utilize methodologically rigorous design such as randomized controlled trials to test adapted versus non-adapted interventions of the same therapeutic modality. It is possible that if more systematic and deep structure adaptations are implemented, the benefits may have been even greater.

Smith, Domenech Rodríguez, and Bernal (2011) reconducted the previous meta-analysis using refined methodological criteria. Specifically, their meta-analytic review included only studies that used quasi-experimental and experimental designs. Moreover, studies involving only ethnic and language matching were excluded. Some aspect of the content, format, or delivery of the intervention also had to be purposefully modified to address issues of culture, race, or ethnicity. A moderate effect size of .46 was found, indicating that adapted treatments performed better than control groups. However, the definition of control group was still a major problem because nearly all studies utilized wait-list controls, treatment as usual, or compared treatments that were not equivalent in theoretical orientation.

Benish, Quintana, & Wampold (2011) also conducted a meta-analysis to address methodological limitations. Specifically, their study addressed the "file drawer problems" and included both published and unpublished studies. They found that culturally adapted psychotherapy is more effective by an effect size of .32 than unadapted, but bona fide

psychotherapy. However, bona fide psychotherapy did not refer to a cultural adaptation of the same evidence-based practice and theoretical orientation (e.g. culturally adapted CBT versus nonadapted CBT), which again limits the conclusions that can be drawn. Many of the studies also had significant methodological weaknesses and/or biases such as very small sample sizes (e.g. often times with numbers in the single digits or less than 20 participants per treatment condition), providing additional treatment for clients in the culturally adapted arm (resulting in unfair comparisons of lengthier adapted treatments versus shorter nonadapted treatments), conducting therapy in ethnic languages for the adapted condition but English in the nonadapted condition (resulting in participants of differing acculturation levels being treated in each condition), and client-therapist ethnic match biases (utilizing ethnic match in the adapted condition but not in the nondapted condition). These limitations further highlight the need for clinical trials that use more rigorous methodologies and comparability criteria.

Part of the problem is that few deep structurally adapted psychotherapeutic interventions exist, and few studies have utilized randomized head-to-head comparisons of adapted vs unadapted treatments of the same therapeutic modality. Moreover, few guiding frameworks have been developed to help scientist-practitioners develop interventions that incorporate deep structural adaptations. Bernal, Bonilla, and Bellido (1995) developed one of the first frameworks for culturally adapting therapy. Eight different dimensions where adaptations might take place are highlighted, including language, persons, metaphors, content, file concepts, goals, methods, and context when adapting therapy for culturally diverse clientele. This framework has been used to culturally adapt and modify psychotherapy for Latino populations.

Hwang (2006, 2012) developed an integrative bottom-up and top-down framework for adapting therapy for diverse populations, and demonstrated the usage of this model to culturally adapt psychotherapy for Asian heritage populations. The Formative Method for Adapting Psychotherapy Framework (FMAP) is a community-based bottom-up approach for culturally adapting psychotherapy and consists of five phases: (1) generating knowledge and collaborating with stakeholders (2) integrating generated information with theory and empirical and clinical knowledge, (3) reviewing the initial culturally adapted clinical intervention with stakeholders and revising the culturally adapted intervention, (4) testing the culturally adapted intervention, and (5) finalizing the culturally adapted intervention. The FMAP integrates the more theoretically driven and top-down Psychotherapy Adaptation Modification Framework (PAMF) in its second phase.

The PAMF consists of six therapeutic domains and 25 therapeutic principles (Hwang, 2006). The domains include: (1) dynamic issues and cultural complexities, (2) orienting clients to psychotherapy and increasing mental health awareness, (3) understanding cultural beliefs about mental illness, its causes, and what constitutes appropriate treatment, (4) improving the client-therapist relationship, (5) understanding cultural differences in the expression and communication of distress, and (6) addressing cultural issues specific to the population. These frameworks have been used in the first head-to-head randomized controlled trial testing a nonadapted therapy to a culturally adapted intervention of the same therapeutic modality. Specifically, nonadapted CBT was compared to culturally adapted CBT (CA-CBT) for treating depressed Chinese Americans, and found to confer benefits in symptom reduction and reduced dropout (Hwang et al., 2015).

Given that psychotherapy was initially developed for and by White populations, the need to empirically test its efficacy and generalizability to other groups is scientifically recommended. This is especially important given that the majority of the world's population is non-White and comes from non-Western backgrounds. Mental health services around the world tend to be sorely lacking and the notion of psychotherapy and mental health treatment does not exist in many cultures. This unfamiliarity, compounded with the stigma toward mental health services that is highly prevalent among different ethnocultural groups, highlights the importance of effectively engaging and treating diverse populations.

The cultural adaptation of psychotherapy and mental health services, and the ability to understand and address how culture affects psychotherapy process, is critically important. It is also important to note that cultural adaptations are not ethnic or racial adaptations. Specifically, culture is in flux and ever-changing. Therapists who are skilled at culturally adapting treatments must be able to flexibly utilize cultural knowledge to improve services, bridge cultural beliefs with therapeutic concepts, integrate extant cultural strengths, and understand and address cultural issues that may act as barriers or help engage clients in treatment. Although many scientist-practitioners have already begun developing culturally adapted psychotherapies, much more work needs to be done to improve and ensure that mental health services for diverse populations are effective.

In addition, future research also needs to evaluate and test mediators and moderators of change. For example, it may be that level of acculturation is a moderator of treatment outcomes. Cultural adaptations may be more beneficial for those who are less acculturated than for those who are more acculturated. Benefits may also be moderated by ethnic or English-language fluency, age of immigration, or developmental stage in which one migrates. Finally, empirical tests of the mechanisms of change also need to be conducted. For example, which adaptations drive symptom reduction (e.g. utilization of cultural metaphors, developing bicultural communication skills, or addressing culture-specific issues) and/or help retain clients in therapy (e.g. therapy orientations) also need to be validated through empirical research. Specifically, culturally adapted treatments need to retain therapeutic elements that generalize across populations, but we also need to be able to systematically test which adaptations are helpful and validate the reasons why they are beneficial.

See Also

Biculturalism
Cultural Encapsulation
Individual Differences in Acculturation
Universality vs. Cultural Specificity of Personality

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Cultural Intelligence

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Conceptualized and Categorized

Cultural intelligence is defined as "an individual's capacity to function and manage effectively in culturally diverse settings" (Ang et al., 2007). This term *cultural intelligence* and CQ was originally developed by Christopher Earley and Soon Ang (Earley & Ang, 2003) to measure and research this construct that is a form of cultural competency. Cultural intelligence emphasizes the ability not only to function effectively but also to bridge cultural differences. Ang and her colleagues conceptualized CQ into four different dimensions that correspond to the depth, breadth, and flexibility of an individual's cultural strategies, knowledge, drive, and skills. Metacognitive CQ is associated with strategies and refers to one's mental capacity to acquire an understanding of cultural knowledge. More specifically, the strategies include planning, awareness, and checking. Cognitive CQ is associated with knowledge about various cultures and cultural differences. Moreover, cognitive CQ includes both general knowledge on cultural issues and specific knowledge about certain cultures. Motivational CQ is associated with drive and refers to one's ability to focus and persist in efforts toward functioning in intercultural situations. This drive includes both intrinsic and extrinsic interests, and self-efficacy for intercultural encounters. Behavioral CQ is associated with skills and refers to one's capacity to behave flexibly to function effectively in cross-cultural interactions. CQ skills include verbal behaviors, nonverbal behaviors, and speech acts. A bi-factor theory of the four-factor CQ model has been supported through meta-analysis (Rockstuhl & Van Dyne, 2018).

 CQ's greatest contribution is advancing our knowledge and understanding of intercultural competence beyond simply describing and explaining cultural differences. In slightly more than 10 years of research, CQ has demonstrated through rigorous study that it is strong measurable psychometric construct with construct, predictive, and incremental validity (Matsumoto & Hwang, 2013). While a large body of scholarship

exists that explains intercultural competence as attitudes and worldviews or traits, CQ argues that focusing on situation-specific capabilities is more proximal to predicting effective intercultural performance (Leung, Ang, & Tan, 2014).

Similarity of CQ with Other Concepts

CQ is a form of cultural competency, which can be measured and enhanced. The concept of CQ is a natural evolution from the relatively well-established notions of intelligence quotient (IQ) and emotional intelligence (EQ). As a form of intelligence, CQ is positioned as an ability rather than personality characteristics, interests, or outcomes. Although CQ has overlapping characteristics with cognitive intelligence and emotional intelligence, CQ focuses on predicting performances in intercultural settings and interactions. CQ has demonstrated incremental validity over these other types of intelligence (Ang, Van Dyne, & Rockstuhl 2015). If intelligence research has established that intelligence is one's ability to adapt to different kinds of environments, therefore, CQ reflects one's ability to adapt to different cultural environments. Rather than a culture-specific skill, CQ is a more general capability that enables negotiation across different cultural environments. CQ is a "state-like individual difference" that is malleable and can be developed through experiences and training.

Measuring CQ

There are three broad types of CQ measures: (a) self-reported measures where participants report their own CQ capabilities; (b) informant-based measures where knowledgeable observers rate the person's CQ capabilities; and (c) performance-based measures where individuals demonstrate their CQ capabilities through standardized tests.

The most commonly used measure of CQ is the Cultural Intelligence Scale (CQS). The CQS was initially developed as a self-report scale, which included 20 items measuring the four-factor CQ model with the dimensions of metacognitive, cognitive, motivational, and behavioral CQ. The factor structure of the CQS has been examined with samples of individuals from multiple countries including Korea, Singapore, Turkey, and the United States of America. With advanced research, the CQS expanded into a 37-item measure that includes 13 subdimensions with more specified areas within the four dimensions. Owing to its self-report nature, the CQS is viewed more as a subjective form of cultural self-efficacy, which has been criticized to be different from one's actual ability to function in cross-cultural settings.

To address the limitations of self-reported CQ, the CQS can also be used as an informant-based measure where another knowledgeable person, such as a peer, supervisor, or observer rates the level of CQ based on the CQS items. This method of assessing CQ attempts to reflect more of the person's CQ reputation. The convergent validity between self-rated and other-rated CQ has been found to be adequate with reasonably high correlations between the two (Ang et al., 2015).

Performance-based CQ measures have been a recent development to assess CQ. This type of measure draws on the situational judgment test paradigm. With a CQ situational judgment test, participants are asked to identify the best course of action in response to

videos of intercultural work-related situations. The CQ situational judgment test has demonstrated the ability to significantly predict task performance and interpersonal citizenship behaviors (Ang et al., 2015).

CQ and Personality

As mentioned previously, CQ is conceptualized as a malleable form of intelligence that can be developed through exposure to different cultural contexts. Therefore, CQ is conceptually different from personality traits. However, CQ is associated with personality traits in that personality traits influence behavioral tendencies and personal experiences that in turn impact the development of CQ. In studies that examined the relationship between CQ and big five personality traits, openness to experience was found to be most strongly related to CQ, and moreover, significantly associated with all four CQ dimensions (Ang et al., 2015). Other big five personality traits were found to be only associated with certain CQ dimensions. For example, extroversion predicted only cognitive, motivational, and behavioral CQ, but not metacognitive CQ. Emotional stability and agreeableness predicted behavioral CQ only, whereas conscientiousness predicted metacognitive CQ only.

In addition to the factors predicting CQ, CQ in turn is also predictive of performance and psychological outcomes in cross-cultural settings. Individuals with higher CQ reported better general, work, interactional, and psychological adjustment. Various dimensions of CQ predicted decision-making ability, task performance, cultural adaptation, cross-cultural interactions, and the development of a stronger social network (Ang et al., 2015).

Mediating Effects of CQ

Not only is CQ associated with personality traits and adjustment outcomes, CQ mediates the relationship between the two (Ang et al., 2015). For example, CQ was found to mediate the effects of cultural empathy, open-mindedness, and flexibility on the adjustment of international students. CQ has also been found to mediate the relationship between openness to experiences and job performance of expatriates. In addition, the relationship between prior international experiences and adjustment outcomes has also been linked through CQ. In sum, CQ is a critical factor explaining why personality traits and prior international experiences are related to more positive and adaptive cross-cultural adjustment and performances.

CQ has also been found to serve as moderators that affect the relationship between certain variables (Ang et al., 2015). For example, for leaders with higher levels of CQ, the effectiveness of their transformational leadership and organizational innovation was stronger compared to leaders with lower CQ. In another study, CQ was found to interact with cultural diversity in predicting voice instrumentality. For those with high CQ, the relationship between cultural diversity and voice instrumentality was positive; in contrast, for those with low CQ, the relationship between these two variables were negative. Therefore, there are certain positive effects between variables that only exist among those with higher levels of CQ.

Enhancing CQ

CQ is malleable and can be enhanced through life experiences as well as training. Having cross-cultural experiences has been found to be a key in enhancing CQ. Moreover, individuals who spend more time and interact with culturally different locals overseas have been found to have the steepest increase in CQ. Not all individuals develop CQ at the same pace. In a study with Chinese international students, four different patterns of CQ development trajectories were found during their first semester of studying abroad (Wang, Heppner, Wang, & Zhu, 2015). There were groups with (a) consistently high CQ scores, (b) decreasing CQ scores, (c) increasing CQ scores, and (d) a sharp decrease in CQ scores over the first two months, which later rebounded at the third month.

Although CQ can be developed through experiences abroad, specific factors that facilitated CQ development included the processes of resolving cultural dilemmas, developing a new worldview, and making sense of the emotions experienced. Therefore, it is not simply the cross-cultural experiences that enhance CQ but rather a sequence of interactive learning where CQ develops. Experiential learning theory suggests that CQ is enhanced through a learning cycle of (1) engaging in direct cross-cultural experiences, (2) critically reflecting on the experiences, (3) abstracting these reflections into general concepts that guide future behaviors, and (4) actively experimenting with the new behaviors and to assess their effectiveness.

Systematic programs have been designed using experiential learning and social contact principles, which have shown a positive impact on the development of CQ. However, there were differences in the growth trajectories of the different CQ dimensions. For example, participating in a four-week virtual multicultural working teams with members from five different countries resulted in a significant increase in metacognitive, motivational, and behavioral CQ, but not cognitive CQ. Perhaps the cross-cultural interactions provided participants a better realization of their limited cultural knowledge. In contrast, training programs that emphasized lectures have been found less effective. These types of programs resulted in decreases in cognitive and metacognitive CQ. A possible explanation is that the sessions made trainees realize their limited intercultural competence without offering them actual experiential opportunities to enhance their CQ. Overall, programs with higher quality intercultural contact led to greater increases in CQ (Ang et al., 2015).

Ang and Van Dyne (2008) edited a seminal handbook that represented the fast-growing breadth of CQ across disciplines of study. Twenty-four conceptual and empirical papers reflected the theoretical rigor, psychometric qualities, and nomological network of this concept, the specific role of CQ in multicultural teams, as well as the versatility of CQ for application in such fields as applied linguistics, counseling psychology, and short-term missionary work. Additionally, it has been proposed that CQ presents a framework for teaching that helps with bridging the relationship gap between teachers and students as well as developing students' skills that engender global, citizenship, and character education (Goh, 2012).

See Also

Culture and Personality
Personality in Culture

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Personality and Prejudice

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Intellectual and Social Context

In his classic book, *The Nature of Prejudice,* Gordon Allport (1954) observed that "One of the facts of which we are most certain is that people who reject one outgroup will tend to reject other outgroups. If a person is anti-Jewish, he is likely to be anti-Catholic, anti-Negro, anti-any outgroup ... Prejudice is basically a *trait of personality*" (pp. 68, 73). Prejudice was generally perceived as a flawed personality, a trait that distinguished a person from the norm, a kind of deviancy or psychopathology.

Prejudice, in this early view, was an irrational mental process that permitted individuals to persist in a negative attitude toward outgroup individuals for which confirmatory social information did not exist or precluded their ability to evaluate properly the information that was available. The net effect was a dysfunctional syndrome of hatred, negative affect, stereotyping, and the variety of behaviors to which these psychological states give rise.

The focus on prejudice grew as social scientists addressed the problem of *de facto* and *de jure* racial segregation and discrimination. LaPiere (1934) traveled across the United States with an Asian couple and found accommodations everywhere they went, even though a follow-up letter to the establishments asking if they would allow Asians to stay were uniformly answered No! Prejudice was definitely a personal characteristic, but it also was characteristic of societal attitudes, policies, laws, and conventions.

Through increasingly sophisticated theorizing and research methods, the concept of prejudice evolved from mainly a negative personal attitude toward members of an outgroup based on stereotypes about the group, to outward expression of underlying feelings, often unconscious, that reflect fundamental mental and emotional psychological processes. Prejudice is not entirely irrational or pathological, but a product of human psychology.

The social context of intergroup relations shifted dramatically from 1954, when Allport's book was published and the *Brown v. Board of Education* decision declared racial segregation unjust and illegal, through the 1970s. The broad social eruptions produced by the civil rights and women's movement, the Disability Act and later immigration policy and an

aging population and increasingly foreign-born citizens, meant that prejudice was more complicated to identify and understand (see Jones, Dovidio & Vietze, 2014, Chapter 3). Explicit biases signaled by the personality view, were challenged by growing evidence of the subtle, implicit, and mental models of attitudes and behaviors that were associated with prejudiced behavior. While overt expressions of prejudice subsided, subtle expressions persisted.

At the macro level, social norms and customs were no longer excuses for bias, but drivers of it. However, these influences were related to interiorized thoughts that, while below awareness, were shown to determine prejudiced behavior. The challenge was to understand those individual variations in biased thought and behavior – the prejudiced personality indicated by greater susceptibility to negative norms and beliefs – while also recognizing that in varying degrees, everyone was susceptible to a variety of prejudicial biases. The research and theorizing about prejudice articulated a more mainstream view of its normalcy rather than its abnormality.

Changes Over Time

Allport describes certain cognitive and attitudinal dispositions that are common among individuals who are prone to high levels of prejudice. Prejudice-prone individuals, he argued, tend to exhibit strong preferences for social order, a strict adherence to moral conventions, and submission to authoritarian leadership. Further, those prejudice-prone personalities prefer cognitive dichotomizations or "black and white" thinking and exhibit a weak tolerance for ambiguity, instead preferring predictability and certainty (Allport, 1954, pp. 395–408). The *authoritarian personality* emerged as a summation of the traits Allport theorized as the prejudiced personality (Adorno, Frenkel-Brunswik, Levinson, & Sanford, 1950).

The authoritarian personality – marked by rigid thinking, adherence to traditional values, a projection of inner hostility onto others, and an emphasis on the use of force and aggression – was one of the first attempts to identify those with prejudice inclinations. Adorno and colleagues conceived of authoritarian traits as akin to fascism and developed the F-scale, to measure a person's susceptibility to fascist propaganda. While effective in identifying individuals with generalized prejudices, the use of this scale was relatively short-lived due to critiques regarding the scale's validity, particularly its bias in targeting right-wing political stances as fascistic and its sensitivity to response acquiesce. Although Adorno's approach to authoritarian personality fell out of a favor, it spurred the development of more nuanced contemporary trait measures that better capture dimensions of the prejudice-prone personality identified by both Allport and Adorno.

Right-wing authoritarianism (RWA), (Altemeyer, 1981) is a widely cited update to the authoritarian personality. RWA reflects the degree to which an individual adheres to traditional conventions and norms and tends to be submissive to authoritarian leadership. Individuals with right-wing authoritarian personalities also tend to support the use of aggression and force to suppress social forces who threaten their traditional values.

Similar to RWA, social dominance orientation (SDO) (Sidanius & Pratto, 1999) taps into one's need for social order by measuring the degree to which individuals support

hierarchy-based social systems. Those high in SDO tend to support group-based social hierarchies that exacerbate social inequalities by allowing high-status groups to dominate low-status groups. While these two traits are often related to one another, they tap into different dimensions of the prejudice-prone personality. RWA emphasizes support for the adoption of conventional norms and submissiveness to authority, while SDO is associated with a desire for a group-based social hierarchy. Importantly, both traits are associated with the display of explicit prejudice and discrimination

Major Dimensions of Personality and Prejudice

Allport's *trait of personality* has been crystallized as *generalized prejudice*. However generalized prejudice has been qualified by the distinction between devaluing outgroups generally, or groups low in power and status specifically. Research by Bergh, Akrami, Sidanius, & Sibley, 2016) concludes that generalized prejudice results in devaluing marginalized groups. Current research, though, has expanded the specifics of generalized prejudice to include (in addition to authoritarian personality, RWA and SDO) psychological attributes such as psychological inflexibility, perspective taking, and empathic concern. Research shows that these variables predict prejudice level over and above indicators of generalized prejudice (Levin, Luoma, Vilardaga, Lillis, Nobles & Hayes, 2016). Other dimensions emphasize more general cognitive processes such as preference for dichotomy, intolerance of ambiguity, and mindset. A cognitive need for closure (NFC) (Kruglanski, 2004) reflects both a preference for dichotomy and an intolerance of ambiguity. The high NFC person desires situational certainty and predictably and tends to see social groups as more homogenous and less individuated. This tendency subsequently increases the likelihood of using group-based stereotypes to make inferences about individuals or their behaviors which can lead to more prejudiced attitudes. While having trait like dispositional tendencies, NFC has also been found to be sensitive to situational demands such as time pressures.

Additionally, dichotomized social thinking – mindset – indicates an individual's lay theories of human nature. Specifically, beliefs about prejudice, and the degree to which one views dispositions as fixed, have been linked to discriminatory behaviors. The belief that prejudice is a fixed trait has been associated with poor intergroup interactions and a general disinterest in reducing personal prejudices (Carr, Dweck, & Pauker, 2012). However, a malleable mindset, while also measured as a trait, is more sensitive to social contexts and can be situationally altered.

Current Work and Emphasis

These cognitive and attitudinal dimensions of prejudice have been reliably predictive of explicit discriminatory behaviors and prejudiced attitudes; however, they may not be adequate in explaining subtle modern forms of prejudice. Modern prejudices are often not explicit and may at times even be unintentional. Many common forms of modern prejudice come from well-meaning and egalitarian-minded individuals who do not strongly match the prototypical prejudiced personality.

While these dimensions of the prejudice personality appear to play a vital role in leading to discriminatory behaviors, understanding implicit forms of prejudice must be examined in terms of the social, historical, and cultural contexts. This is particularly true for the more contextually malleable dimensions of NFC and fixed mindsets. However, it is also relevant to SDO and RWA, which are motivated by a fear or antagonism directed at outgroups perceived to be socially or economically threatening.

Modern emphasis on prejudice takes on a socio-cultural perspective, which examines the influence of personality in terms of the current social context. One prevailing model that has extended this socio-cultural perspective of prejudice is Mischel and Shoda's (1995) cognitive-affective personality system (CAPS). CAPS stresses the dynamic interplay between personality and the social context in motivating behavior, particularly in the case of inter-race/ethnic interactions. Recent research has emphasized the role of these prejudice-prone personality dimensions within different contexts (outgroup status, situational demands, societal pressures) and the ultimate effect this interaction has on the expression of negative group attitudes (Hodson & Dhont, 2015).

Future Directions in Research, Theory, and Methodology

Current work emphasizes trait-based consistency, psychological variables that interact with these generalized traits, and situational factors that moderate them. The result is complexity of the prejudice concept that drives current theory and research (Hodson & Dhont, 2015). The major future direction should focus on these complex interactions among traits, psychological dispositions, and social contexts in producing prejudiced behavior. Although generalized prejudice asserts a prejudice type, variations in outgroup characteristics have been shown to matter and should be explored further. Another important consideration is the effect of prejudice on its targets. This has been a major focus of prejudice research over the last two decades and is critical to understanding the reciprocal effects of prejudice on actors and targets. Target responses have been described in terms of resilience and self-protection, as well as poor psychological well-being. Determining what factors influence which of these effects will occur, and when, are important theoretical and research goals. Further, more longitudinal investigations are needed to chart the course of interactions over time and discern how reactions of targets affect prejudiced actors and undermines or fortifies intergroup relations. The explosion of work on implicit processes has illuminated factors that have theoretical, empirical, and practical significance. Ultimately, prejudice reduction, a longstanding objective of prejudice research, needs more finely developed theorizing and empirical studies and can itself be a focal point of future research.

See Also

Authoritarianism
CAPS
Gordon Allport

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Universality vs. Cultural Specificity of Personality

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Introduction

Emerging as a reaction to social evolutionist theories, the study of culture and personality focuses on the interaction between psychological behaviors and the overarching culture involved. Several approaches have been taken, including biological, humanistic, psychoanalytic, and trait assessments. With the development of more precise, scientific measures of personality the trait perspective quickly came to dominate the field. This perspective relies on the theory that personality traits are innate and dispositional characteristics and can be universally observed across cultures. While this theory still dominates the field, a number of different perspectives have emerged in recent years to challenge the perspective. A culturally situated perspective argues that personality is not simply the result of biology but is, instead, highly influenced by different cultural orientations and child-rearing practices. The conflicting perspectives lead to the debate over whether personality should be considered the result of dispositional traits or whether personality is the result of culturally specific characteristic adaptations influenced by unique lifeways and thoughtways. Other arguments add to this debate by suggesting that personality is the result of both innate dispositions and characteristic adaptations.

Psychological Perspectives of Personality

Personality is often conceptualized as the embodiment of a person's thoughts, feelings, and behavior. Psychology, in the late 1800s, was a relatively new and emerging field influenced by the "exact sciences" of the time; it was eager to offer insight and practical solutions to the questions of personality in a psychometric form.

In the 1920s Gordon Allport opted to ratify "trait" as the key concept for the newly emerging field of personality that had important consequences in framing such later issues as the ways in which personality is measured, stability versus change, the roles of "personality," and "situation" in the explanation of behavior and the relationship between trait and other

personality constructs such as motive (Allport, 1927). Allport identified 4,000 traits that can be identified in the personality of individuals. Despite his in-depth analysis of what traits comprise a personality, Allport's work made it difficult to narrow down and analyze which traits are most persistent and in regard to anthropology and which traits are consistent across cultures.

Many years later, Raymond Cattell (1965) developed an influential but controversial 16-personality factor model in an attempt to create a common taxonomy for personality traits. Using factor analysis as a modeling technique, Cattell described 16 personality traits that were used to explain differences between people's personality. Cattell used three sources of data:

- L Data: life record data such as work/school attendance
- Q Data: questionnaire to rate a person's personality
- T Data: objective tests to "tap" into a personality construct

Henry Murray, a Harvard psychology professor for over 30 years, developed a theory of personality based on the individual's needs. Rooted in Murray's psychoanalytic teachings, he believed that a psychological need is a readiness that responds in a certain way in certain circumstances (Murray, 1938). The theory is based on the notion that there is an internal disequilibrium and the core self lacks and desires something. Needs are categorized into either primary (biologically based, e.g. food, water, shelter) or secondary (derived from biological needs or are inherent in our psychological nature, e.g. achievement, dominance, affiliation).

Murray is better known for the development of the Thematic Appreciation Test (TAT) that is also associated with psychoanalytic principles. The TAT involves giving participants pictures and having them write or describe stories about what they see. The psychologist then determines an individual's needs (derived from Murray's needs theory) based on what they wrote or said.

Throughout the twentieth century, personality psychology was heavily dominated by the study of personality traits. Research was expedited to lie out a common taxonomy for personality traits with an emphasis on the use of universal personality measures. With societal tension brought on by WWI, "mental tests" became popularized in the field to distinguish individual differences in the workplace, military, and schools (Parker, 1991). The tests were trait oriented and offered a quick diagnosis and judgment of a person's character, e.g. introversion vs. extraversion. The test-driven judgments were often misjudged as they focused on Western ideals and values to categorize people's personality. These categories reflected the morals and needs as seen fitting by the scientific elite who were mostly funded by military-focused organizations.

In the late nineteenth century through the mid-twentieth century, personality was understood as something innate and unaffected by the individual's surroundings. Traits later became better understood as dimensions of personality that overlapped with one another. There are several personality theories currently accepted in the field, with the Five Factor Model dominating the perspective. The Five Factor Model uses five dimensions of personality known as OCEAN: Openness to Experience, Conscientiousness, Extraversion, Agreeableness, and Neuroticism. The model is used similarly to Freud's

tactics of measurement where an individual's personality may fall low between one or more dimensions, possibly indicating a psychological abnormality.

Despite its origin in Western science, the Five Factor Model has demonstrated to be a generally accurate personality measurement across cultures.

Cultural Specificity in Personality

Culture and personality became of interest once researchers in anthropology and psycho-analytic theory found interest in each other's work. Various interdisciplinary programs were funded during the 1930s through WWII, but interest was lost during the start of the Cold War with economists and political scientists dominating world issues and circumstances. Owing in large part to their field research in different cultural settings, anthropologists raised questions of whether personality traits were universal in origin. Additionally, the solidification of traits in the field of Western psychology provided a basis for anthropologists to compare personalities across cultures. Increasing globalization in the 1990s called for more influence of culture influences and varying child-rearing practices on personality psychology.

The Five Factor Model uses a lexical approach and has been translated in numerous languages ostensibly for use with various ethno cultural groups. Current studies show systematic patterns across cultures however interpretations of findings vary. The absence of certain dimensions does not necessarily indicate a personality defect but rather that the dimension at hand could be unimportant to that culture. While the dimensions of the Five Factor Model may be present across cultures, it does not detect signs of novel traits that may be unique to a particular culture. The neglect of culturally distinct traits is where the attempt at universalizing personality loses some value. As a result of the inquiries an anthropological perspective appears to be crucial in the understanding of personality.

Research in cross-cultural gender differences in personality also shows universal patterns across cultures. Expectations of personality differences among cultures are often mistaken.

Gender differences in personality are more common in modern European countries than in more traditional societies (e.g. South Korea, Japan, China, etc.). One explanation for this misconception is that a person might attribute a trait as part of their own personality while another person attribute that same trait as part of their role as a man or woman.

A current argument in the study of culture and personality is whether personality is a set of dispositional traits, as argued by trait psychologists, or whether personality consists of what are referred to as characteristic adaptations. The argument for the idea of characteristic adaptations revolves around the belief that traits are not necessarily innate dispositions but, instead, are driven by society, culture, motives, drives, and coping mechanisms. This argument states that while individuals may possess certain innate dispositions, the extent to these are manifest in the individual depends highly on enculturation.

Cultural psychologists, in particular, tend to focus on the "mutually constitutive" nature of culture and personality. Both personality and the self are seen more as social constructs and

therefore vary across cultures. One example concerns the differences in individualistic and collectivist cultures. Within individualistic cultures, members are viewed as being more autonomous. Within this cultural construct, individuals will have distinctive dispositions which can drive behavior. This view allows more for ideas that personality is innate and dispositional. Within in collectivist cultures, the thought of the individual is minimized. People are viewed more as part of the whole. Since this type of culture is more society focused, behavior is often viewed as a response to the group as opposed to dispositional (Church, 2010).

Indigenous psychologists tend to argue that personality as an innate disposition does not take into account culturally specific constructs. Some of these include the Japanese construct of indulgent dependence, the Korean constructs of affection and dignity, and the Mexican construct of the avoidance of conflict. While many of these constructs are taken into account in the Five Factor Model, they may appear to be different within non-Western cultures. Indigenous psychologists are more likely to view personality traits as characteristic adaptations because they view cultural context as salient. They believe that personality traits are the result of universal tendencies and motives and their interactions with specific cultural settings and enculturation.

Anthropology and Personality

American linguist and anthropologist Edward Sapir is considered to be among the first to begin to establish the study of culture and personality as a unique subfield of anthropology. He was heavily influenced by Gestalt principles, particularly the idea that perception can only be understood when considering meaning as a function of organized patterns. He applied this theory to the study of language, culture, and personality. Ruth Benedict expanded on Sapir's work by arguing that culture determined the meaning of its parts and the relationships between them.

Franz Boas's early contributions to culture and personality began with refuting common evolutionist theories that tried to explain cultural differences using the universal human evolution scale. Boas's work emphasized the plasticity of human nature that can be found in any individual allowing them to develop the behaviors elicited by a culture. This characteristic helps to account for the variety of differences seen across social groups. As a student of Boas, Margaret Mead approached the study of culture and personality by examining what she called "dominant cultural configurations." These prominent researchers in the field helped to develop the formal field of psychological anthropology.

A New Model for Studying Culture and Personality

Higgins (2008) believes that in order to accurately study personality across cultures a new model must be developed; to accomplish this goal he proposes a five-step approach. The model relies on the need to take into account universal motives that may underlie both personality and culture. The iterative steps take into account a number of perspectives including evolutionary, social, and cross-cultural. Higgins believes that in order to accurately relate culture and personality, the following criteria must be met:

- Identify universal principles of human functioning that underlie both culture and personality.
- Treat those principles at different levels of analysis for culture and personality.
- Define culture and personality in terms of those principles in a manner that maintains the integrity of these concepts.
- Select specific psychological factors that, because of their survival value, are present in every culture and individual, although to varying degrees.
- Postulate how different cultures and personalities emerge from variability in the predominance of those specific psychological factors.

Higgins also believes that the variability in universal motives could be a missing link in the study of culture and personality. His novel argument is much in line with the idea of personality being the result of characteristic adaptations. While many human motives are universal, the means by which these motives are realized is highly dependent on cultural context. In Western cultures, these motivations are more individualized while in more collectivist cultures they are group dependent. Higgins argues that understanding how culturally specific motives influence the development of personality traits may lead to a more acute process for measuring personality across cultures. In addition, these measures could offer explanations to differences in personality cross-culturally.

Though there are a number of perspectives in the understanding of personality, the majority of theories rely on the idea that personality possesses an innate component. Further understanding of cultural contexts has led to the pursuit of understanding personality on levels beyond concepts of inherent behavior. As Higgins would suggest, perhaps the debate is an incomplete one that requires a shift in focus to examine dispositions in a more cultural context.

See Also

Cultural Encapsulation
Culture and Personality
Individualism vs. Collectivism

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Individualism vs. Collectivism

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Conceptualization of Individualism and Collectivism

Conceptualization of Individualism

Individualism is grounded in the belief that individuals are separate beings with personal differences that make him/her unique from their group (Triandis, 1995). Such individuals have the tendency to describe himself/herself as a person first (e.g. "I") as opposed to a member of a group (e.g. "sister"). This is called an independent view of self. Larger focus is placed on internal processes and desires including goals, values, needs, preferences, rights, and identity. These guide and motivate an individual's behavior and thoughts irrespective of conformity to one's group (i.e. personal goals will override goals of the group). Therefore, individualists behave in accordance with their attitude as opposed to the norms and mentality of their group. *Idiocentric* is another term for individuals or countries that follow the individualist view of self, goals, and behaviors (Triandis, 1995).

Features and components of individualism include autonomy, self-reliance, individual achievement, competition, unrealistic expectations of their relationships (e.g. abandoning personal needs and wants for others), and feelings of insecurity (Berry, Segall, & Kagitcibasi, 1997). Individualists encourage creativity and personal differences, valuing equality of individuals and liberty from others. Therefore, they are inclined to satisfy their own desires and goals over that of others, focusing on action that allows for personal benefit. Individuals also maintain equality through rejection of authority figures and distribution of rewards. In their political and social systems they have been identified to spend large amounts of money on military spending. In particular, American individualists value separation from family, religion, and community (Berry et al., 1997).

Individualists aspire to achieve self-satisfaction, and reach one's full potential (Berry et al., 1997; Triandis, 1995). Consequently, individualists maintain an internal locus of control, assuming personal responsibility for their actions and well-being. In order to attain such goals, individualists deny rigid standards and avoid social pressures of conformity. Hence, it

is likely that individualists maintain looser connections to people in their immediate group and larger society. Relationships with others are evaluated and maintained when considered beneficial to the individual and consistent with his/her beliefs. However, anthropologists have viewed individualists as more accepting of differences in relation to family structure and aesthetics. Furthermore, individualists have more freedom to maintain differing political and religious affiliations (Triandis, 1995).

Literature has identified two types of individualism, horizontal and vertical (Triandis, 1995). Both groups value high freedom, independence, achievement, and an autonomous view of self (i.e. independence). Based on this premise, achievement is determined from one's contributions (e.g. effort) for both groups. In addition, both groups follow market-pricing system, meaning the quality of an individual's contributions establishes the value of the outcome one receives (e.g. money) (Triandis, 1995). Within this system, the self is frequently defined by occupation, which as a result affects their role and profit in society.

However, horizontal and vertical individualists differ in numerous ways. Generally, horizontal individualists value harmony (Berry et al., 1997). More specifically, horizontal individualists maintain the same value of independence, but strive for uniformity among group members, so that no individual stands out from the group. These groups emphasize equality in work and social justice. They prefer to maintain a democratic government and a collectively shared economy, whereby every member contributes to managing the economy.

Alternatively, vertical individualists generally value power distance, highlighting independence from people of power and authority. Emphasis is placed on respect, loyalty, and obedience in relationships (Berry et al., 1997; Triandis, 1995). In contrast to horizontal individualism, they respect individuality from one's group and utilize achievement to acquire a distinct status. The members of this group strive to "be the best" and favor a democratic government with a capitalist style economy (i.e. an economic system operated by private ownership and profit) (Berry et al., 1997; Triandis, 1995). Therefore, one's status equates to fortune and success. Resources are distributed according to rank and inequality is accepted within society (Berry et al., 1997).

Conceptualization of Collectivism

Collectivism is a social pattern that consists of individuals closely interconnected in a group. The collective group determines a person's values, behaviors, needs, norms, and identity. Because collectivists are more likely to identify as a group, they tend to use collective pronouns. The connections between group members exist since birth and are integral in collectivist societies. Each member has specific duties that contribute to the mechanism of interrelated groups and the larger holistic society (Berry et al., 1997; Triandis, 1995). Members adhere to social norms in collectivist societies whereby worldview is shaped by the group's mentality and perspectives of the world. Group members depend on each other for survival, protecting each member and are each devoted and obliged to the group (Berry et al., 1997). Hence, members take into consideration the effect of one's actions on group members. Interaction between group members is more valuable than privacy (Berry et al., 1997; Triandis, 1995).

Features and components of collectivism include the beliefs that the interest of the group is more important than individual interest, individual freedom is dependent on the

group, and social norms are defined by the group and not individual pleasure seeking. Collectivism tends to limit emotionality and creativity in its members. Moreover, collectivist societies value dependence, hierarchy, courtesy, camaraderie, and familial modesty among members of the community. In these communities, collectivistic tendencies emerge from expectations of reward and punishment from the group. In these societies, group achievement is valued beyond individual success. Therefore, the members of collectivist societies tend to have external locus of control and engage in high self-monitoring, such as making sure that their behaviors fit the social norm (Berry et al., 1997). They tend to be cooperative, share their resources, and have attachment to the land. Allocentric is another term for individuals or countries that follow the collectivist view of self, goals, and behaviors (Triandis, 1995).

Collectivist societies value harmonious interactions with others, respect elders, and follow traditions of their ancestors (Berry et al., 1997; Triandis, 1995). Members are focused on group success in contrast to an individual's status. Beliefs of the group members are more likely to be similar to one another and are less likely to set individuals apart from the group. Therefore, an individual's identity incorporates group values and characteristics. Group members are taught to enjoy their specific social roles and make sacrifices to benefit the group. Interpersonally, members are more likely to maintain relations with one's group members regardless personal feelings and attitudes toward them (Berry et al., 1997; Triandis, 1995).

Further examination of collectivist societies also provides two distinctive groups, vertical and horizontal collectivism. Horizontal collectivism assumes complete equality among all members of the group, whereby changes in group rank and equality weaken the camaraderie between members. They do not try to stand out or dominate over other members in the group. The group members' identity, values, behaviors, and status are very similar to each other and differences are minimal. These members commonly live together in a community and share resources equally (Triandis, 1995).

Alternatively, in vertical collectivism each member has a specific duty to fulfill that contributes to the overall benefit of the group. Members in this group are unequal and tend to accept orders from authority figures. Communal resources are distributed in a descending order, starting with a member that has the highest rank in society. Slight deviations from the norms may occur but are not encouraged. Research findings identified most collectivist cultures as vertical (Berry et al., 1997; Triandis, 1995).

Individualism and collectivism also differ in their understanding of ingroup and outgroup members. Ingroup members are similar and show concern for each other's wellbeing. Members maintain a sense of "common faith" causing members to feel intertwined with one another and are impacted by the successes and failures of the group. Examples of ingroup for both individualistic and collectivistic cultures include family and kinship. Outgroup members are dissimilar in their values and attributes. They can also be viewed as harmful or in conflict with the ingroup (Triandis, 1995).

A person belonging to an individualist culture will define their "self" independently from the group (e.g. I am Mary Elizabeth Jones), while a collectivist will define "self" in relation to the ingroup they belong (e.g. I am a mother). However, depending on the culture, groups such as friends, political parties, religious affiliations, language, and locations may function as an ingroup for collectivists but not for individualists (Triandis, 1995).

Individualistic and collectivist cultures are defined by levels of cultural tightness and looseness, as it relates to the degree of agreement on correct action, behavior according to the norms, and criticism for deviation from the norms. Tight cultures have a limited number of correct options when responding to specific situations; individuals are expected to adhere strictly to culture norms. Members receive a punishment if they deviate from norms. In looser cultures, many options are available when responding correctly to situations and provided rewards for independent actions. For example, tight cultures require a couple to be married prior to engaging in a sexual relationship, but individuals from loose cultures have more options (e.g. they can get married or date casually). Tightness generally occurs in homogeneous societies; these societies are often isolated from other cultures. Members usually live in close proximity to one another and praised for following the actions of others. Looseness is associated with heterogeneous cultures, in which people tend to be rewarded for independent actions. Collectivist cultures are usually associated with tightness, and individualistic cultures tend to be looser (Triandis, 1995).

Similarity of Individualism and Collectivism to Other Constructs

Interdependence and independence, despite overlapping with the concept of collectivism and individualism, are not cultural constructs but self-construals. An independent self-construal is embedded in the inherent separateness of individuals. These individuals define oneself by identifying and expressing the uniqueness of self from others. Individuals with independent self-construals view others as reflections to self and as forms of standards of comparisons. In contrast, the interdependent construal views the self as embedded to others and the larger society (Markus & Kitayama, 1991) and view others as representations of the self. Sub-groups within a culture can have different self-construals in a collectivist or individualist society. For example, women tend to have more interdependent self-construals than men even in an individualist culture (e.g. America). In addition, self-construals have direct influence to self-related processes (e.g. cognitive processes and motivational processes) while social constructs do not. For example, individuals with interdependent self-construals will attend closely to information related to people close to them than individuals with independent self-construals.

Explanations of Collectivism and Individualism

There are various explanations for the development of individualism and collectivism. First, the availability of resources impacted the development of collectivism. Living in groups has direct benefits when resources are scarce, increasing the probability of finding food and reducing the probability of harm from outgroup members and external factors. Some examples of these groups include peasant societies, agricultural communities, and family units. However, advantages of living in a group are less obvious when opportunities increased and society becomes more complex and differentiated. Individualist cultures begin to emerge after the shift from hunting and gathering to agriculture and bartering (Triandis, 1995)

Another explanation is the relationship of individualism and collectivism to social class in modern-day society. In countries where economic inequalities are great, people in the

higher social economic class adopt a more individualist culture (e.g. self-expression and leisure) and people in the lower social economic class adopt a more collectivist culture (e.g. dependence on extended family members). Thus, changes in resources, affluence, mobility, economic development and ways people make a living all contribute to a society being either collectivistic or individualistic.

Finally, the size and structure of the family are also related to being more collectivistic or individualistic. A larger family would also require more structure and rules within the family to ensure harmony, which is more closely related to the collectivist culture. The availability of choices tends to be related to individualism, so people who feel more freedom in their choices are generally more individualistic. In particular, women in general have less choice than men in most societies; therefore, they tend to be more collectivistic than men (Triandis, 1995).

Consequences of Collectivism and Individualism

Individual Consequences

Although the consequences of these constructs have not been empirically studied, suggestions have been explored. On an individual level, the consequences of individualism and collectivism include well-being, personality, and social attributions (Triandis, 1995).

In relation to well-being, individuals from a collectivistic background had lower self-esteem, happiness, and life satisfaction compared to individuals from individualistic cultures, including when income was accounted for (Triandis, 1995). Differing expression of emotions including happiness and shame may also contribute to low self-esteem and life satisfaction. For example, East Asian countries attributed low life satisfaction to self-esteem, education, and health.

In relation to life satisfaction and mood, happiness is an emotion more commonly understood and reflected on in individualistic cultures (Triandis, 1995). Collectivistic individuals may not think about their own level of happiness, and instead seek the answer from their close kin. This may also contribute to feelings of low self-esteem or life satisfaction. Triandis (1995) suggested low self-esteem could cause individuals to be at a higher risk for suicide. Specifically, studies showed higher rates of suicide among individuals on the horizontal dimension of either individualism or collectivism. This is because on the horizontal individualists and collectivists do not enjoy standing out from other members of their group, and suicide may offer an escape from feeling shame when they stand out from their members (Triandis, 1995).

Health and Mental Health Consequences

When it comes to health, research indicated differences between members of collectivistic and individualistic societies. For example, studies found that collectivists have fewer heart attacks compared to individualists. However, when individuals from collectivistic societies acculturate to individualistic societies, their rates of heart attacks increased to the level of those from individualistic societies. Also, collectivistic societies provide more

social support during difficult life events than individualist societies. Owing to an increased emphasis of harmony, equality, and social support, members of collectivistic societies are less likely to experience stress than those from individualistic societies (Triandis, 1995). Studies showed that individualists deal with stress by trying to change the environment for personal benefit, while collectivists try to emotionally adapt to the environment and situation (Hofstede, 2001).

Moreover, attitudes toward mental illness differ in collectivistic and individualistic cultures. Individuals with depression from individualist societies report suffering from guilt and the inability to manage stress associated with personal decisions. In collectivistic societies, individuals with depression find the ability to continue functioning because of their social support networks that help them with decision-making. Social support networks in collectivistic societies also play a critical role for patients with schizophrenia; the entire family becomes involved in the treatment. In individualistic cultures, these patients are commonly treated in inpatient hospitals and isolated from their families (Hofstede, 2001). Studies comparing these systems showed patients with psychosis have a better prognosis in collectivistic communities. This improved outcome has been attributed to social support; generally collectivistic cultures offer more social support than individualistic cultures as the main health care practices and treatment for individuals with a mental illness. However, individualistic cultures integrate individuals with disabilities into society more than collectivistic cultures. Furthermore, members of collectivistic societies have relatively lower occurrences of suicide, divorce, and child abuse than members of individualistic societies (Berry et al., 1997).

Personality traits are also influenced by individualism and collectivism (Triandis, 1995). Traits correlated to collectivistists include self-monitoring, social anxiety, and sensitivity to rejection. On the other hand, individualists are unique, less sympathetic, and more self-focused. Members of both individualistic and collectivistic cultures can be high self-monitors, but with differing presentations. Individualistic self-monitors focus on what others desire out of their behaviors, whereas collectivistic self-monitors behave in ways considered more acceptable by their group members (Triandis, 1995). Personality traits consistent with a new culture or country (e.g. an individualist moving to another individualistic culture) may increase the likelihood of the person acculturating to the host-country as they maintain, exhibit, and value the same traits as the host-culture (Triandis, 1995).

Interpersonal Consequences

Consequences of individualism and collectivism also occur on an interpersonal level.

Differences occur in relationships with their ingroup and their social environment. Within their group, notable outcomes appear in social skills, interactions, and conflicts. In their social environment, differences occur in communication and decision-making, self-efficacy, education, love and marriage, and helping behaviors (Triandis, 1995).

In relation to social interactions and social skills, generally collectivists maintain fewer and closer relationships than individualists (Triandis, 1995). Their interactions occur less frequently than individualists, however, their interactions last longer. They tend to view their relationships as more intimate than individualists. Members of a collectivistic culture follow the norms and behaviors of their group and consequently do not develop other social

skills. In addition, they have fewer intimate partners than their individualist counterparts (Triandis, 1995). Individualists, on the other hand, experience more vague and ambiguous social norms in interactions. Owing to their looser and larger number of friendships, individualists develop social skills that appear superficial (Triandis, 1995).

Next, conflict presents itself differently in collectivistic and individualistic individuals and their relationships. Conflict among collectivist individuals aims to try to improve the current situation usually within their ingroup and aims to improve the status of the collective (Triandis, 1995). Common conflicts concern religion, race, language, and economics. On the other hand, alienation is the common conflict in individualistic cultures. From this culture perspective, the goal is to change aspects of society they disapprove of (Triandis, 1995).

Another consequence of collectivism and individualism on society can be seen through communication. When it comes to individualist societies, it is common to communicate via writing. However, in collectivist societies, there is a preference for face-to-face interaction (Triandis, 1995). Furthermore, silence indicates weakness and shyness in individualist communications whereas it indicates strength or disagreement in collectivist communications.

Members of collectivistic and individualistic societies tend to solve problems and make decisions differently. Collectivistic cultures tend to employ a group consensus method, while individualist cultures prefer to follow majority rules and employ individual conflict resolution methods. During conflict, collectivists focus on the history and context. Trust is established through informal negotiations, and a contract usually includes a clause indicating that disagreements should be addressed through consultation. When debating an issue, collectivists tend to use their strongest argument at the end and individualists utilize their strongest argument in the beginning. In the end, collectivists reach decisions through a consensus and focus on the agreed outcome. On the other hand, individualists separate the conflict from history and context. Discussion involves an evaluation of the positive and negative attributes. They pay attention the details of the interactions during the decision-making process and a resolution occurs in the form of a contract (Triandis, 1995).

In social environments, collectivists tend scored higher on self-efficacy and performance when working with their ingroup while individualists reported higher self-efficacy when working alone (Triandis, 1995). In addition, individualists tend to minimize a friend's success to improve perception of their own performance. They are also more likely to avoid responsibilities and give others a larger portion of the work when not observed by others (i.e. social loafing). These findings are less commonly observed among collectivist group members (Triandis, 1995).

There are various teaching approaches within education that can be viewed as a result of individualist or collectivist ideas (Triandis, 1995). In a collectivist approach to education, teachers strictly follow the educational curriculum and utilize strategies that target the group of students' needs as opposed to an individual student's needs. Minimal accommodations are given to individual students and all students are held to the same expectations (i.e. academically gifted or delayed). In this system, students tend to be compared to one another. Furthermore, students learn to take responsibility for the successes and failures of fellow classmates. Research shows that students who were not as capable as others to meet the requirements of the group, had difficulty due to their perceived self-deficiency (Triandis, 1995).

Alternatively, an individualistic approach to education adjusts teaching strategies and work based on individual student needs (Triandis, 1995). Therefore, teachers employ multiple curriculums based on the students' individual and educational needs. In this approach, it is considered acceptable to excel in some areas and not others. Teachers do not hold students to the same standards and teachers conduct performance evaluations on a private and individual basis. Therefore, students do not take responsibility for the performance of other students (Triandis, 1995).

Perceptions and expectation of love and marriage are the result of these construal differences. Collectivists tend to get married prior to feeling in love, experiencing companionship more than passionate love. In marital conflict, collectivists assume a passive role (Triandis, 1995). The expression of emotions during conflict is often withheld and considered a sign of maturity. When seeking help or advice about relationships, collectivists speak with family members and supervisors. Individualists, on the other hand, fall in love prior to getting married, and take an active role in marital conflict. During conflicts, individualists more readily express their emotions. Shared interests and activities are considered important measures of the quality of a relationship. In contrast to collectivists, individualists prefer help from helping professionals, such as counselors or therapists, when in need of relationship advice (Triandis, 1995).

On a societal level, behaviors associated with helping others and social attributions function differently across the dimension of individualism and collectivism. Collectivists view helping others as a moral obligation rather than a choice, even when helping may not be required (Triandis, 1995). Individualists view helping others as a personal choice and may feel less inclined to do so. Differences in social attributions (i.e. one's perception of social situations) also vary based on individualistic and collectivistic cultures. For example, individualists attribute poverty as the individual's responsibility and reflection of their self-reliance. However, collectivists view poverty as a result of the government and social policies, something out of the control of the individual (Triandis, 1995).

Intergroup Consequences

Intergroup relations are affairs that occur between two or more social groups. Consequences of individualism and collectivism on intergroup relations can be observed though acculturation, prejudice, and discrimination and in the workplace. Thus, because collectivists gain their values and social norms from the group, they are more likely than individualists to identify with the intergroup pattern. Identifying individuals in specific groups becomes more clear when members have specific external characteristics, such as facial features or clothing, which differentiate them from other groups (Triandis, 1995).

When it comes to acculturation, collectivists tend to assimilate to a new culture as an entire group while individualists experience individual changes (Triandis, 1995). Research compared the acculturation of immigrants from individualistic and collectivist societies. Findings demonstrated that immigrants moving from collectivistic societies had more difficulty in making friends and experienced negative life events when adapting to an individualist society than immigrants from individualist societies. Similarly, it is harder for immigrants from individualistic societies to assimilate to collectivistic cultures (e.g. an American moving to an African nation would find it harder than an American moving to an Western European nation).

Although adaptation to a new environment is easier when cultural patterns are similar, if members from one's country or family have already moved to the host-country, it is easier for immigrants to successfully integrate into their new culture (Triandis, 1995).

Successful acculturation can be attributed to finding common values shared between individualistic and collectivistic cultures in the new host-culture and country. Understanding education and achievement can help communities to work together to ensure their children are able to integrate into the new society and achieve success. In the new host-culture, if success is considered independent to each member, dissimilar to traditional views of collectivist societies, the collective group still maintains involvement to help each person succeed (Triandis, 1995).

Cultural misunderstandings may occur when individuals from one construct (e.g. collectivist) enter the social structure of the other construct (e.g. individualist), such as employment. For example, if a company comprised of vertical individualists hired a supervisor from a vertical collectivistic society, the supervisor may expect employees to follow his/her orders very closely. However, the employees likely maintain some independence and not follow every order. As a result, the supervisor may view the employees as disobedient while the employees possibly view the supervisor as militaristic and unreasonable (Triandis, 1995).

Intergroup conflict arises when several groups disagree on social standards, which results in prejudice and discrimination of outgroups in a particular society. In collectivistic societies, members identify with a specific cultural group and tend to evaluate others according to the standards of their cultural groups. Members of individualistic societies, especially from societies with upward mobility, dismiss and invalidate members outside of their group in order to gain achievement. Therefore, vertical individualists commonly discriminate more than horizontal individualists. Collectivists discriminate against individuals that reject and neglect the standards of their group (Triandis, 1995).

In relation to corporate culture, there is a reduced need for socialization into the workplace in individualistic societies. Alternatively, in collectivistic societies, there is a greater need for employees to integrate into their work place. Some collectivistic societies provide structured training to socialize new members of the corporate team. Often top officials use slogans and speeches to create a strong sense of identification within the corporate culture. Research indicated higher solidarity among employees provided a better experience and life-work balance in collectivistic societies. Individualist societies do not invest in extensive training to socialize employees to the corporate culture (Triandis, 1995). Instead, they emphasize an individual's abilities, accomplishments, and initiatives.

Societal Consequences

The consequences of individualism and collectivism on societies occur in economic institutions, health, and religion. Collectivistic and individualistic cultures have different economic systems. Individualistic cultures utilize a laissez-faire approach (e.g. capitalism), whereby the government possesses a limited role in the economic sector. These systems employ market capitalism or market socialism, which is based on individualist interests. The market itself is stimulated by competition. These systems also highlight an equal distribution of wealth between sectors. In collectivistic societies, the government has more

control over the economic sector (Triandis, 1995). As a result of governmental involvement in the economic sector, there is a higher likelihood for corruption, power distance, greed, suppression, and poverty in society (Berry et al., 1997). The economy is based on community interests, thus following either state capitalism or state socialism. Therefore, in collectivist societies, one company or a group owns most of the market for a particular product (Hofstede, 2001). Therefore, the market system is dependent on economic monopolies. In addition, there is a greater difference in distribution of wealth between sectors of the economy (Hofstede, 2001).

Also, individualistic societies tend to have higher levels of economic development than collectivistic societies (Berry et al., 1997). One of the founding fathers of economics, Adam Smith, professed that the pursuit of self-interest of individuals, a common goal in individualist societies, would lead to greater wealth among nations. Individualistic societies commonly have a higher degree of wealth in comparison to collectivist societies. One explanation for this difference states that poverty may force members of societies to rely on each other, creating a collectivistic culture. Therefore, with increases in wealth in communities, members have more resources and an increased ability to gain independence from the group (Hofstede, 2001).

Collectivistic societies also have more strictly defined social classes and a weaker middle class, while individualistic societies tend to have greater social mobility and a strong middle class. Research indicated members of individualistic societies as more likely to live in houses with private gardens, have vacation homes, and purchase home and life insurance. Those from collectivistic societies tend to live in apartments and have security from social networks rather than insurance (Hofstede, 2001).

Collectivist and individualist societies also have different religious practices. Collectivistic cultures prefer to worship together in a group. Salvation for members of collectivistic groups is associated with the well-being of their relatives. In most collectivistic societies, there is a single dominant religion and members usually belong to the same religion. Deviations from this religion may separate the individual from the society. Hence, placing individual needs above group needs may be considered evil. In individualist societies, members choose their own path to worship and salvation and accept multiple religions. These societies are considered monotheistic. These cultures worship many divine beings, who maintain extended social networks (Triandis, 1995). These members often use religious practices to attain individual goals. Generally, religious practices in individualist and collectivist cultures tend to reflect values of those communities (Hofstede, 2001).

Utility of the Constructs of Individualism and Collectivism

In summary, individualism and collectivism are useful constructs in understanding the reasons for behaviors and thoughts, which cause and impact societal and cultural differences. Understanding these differences increase one's understanding of political and social conflicts, both past and present. However, these concepts provide an overly simplistic view that generalizes individuals and their behaviors, which does not account for variance within each construct. On an individual level, it is possible for a person to possess traits from both individualism and collectivism, depending on the context (Hofstede, 2001). For example as

Triandis (1995) suggested, "an individual may be very individualistic at work and quite collectivistic in the extended family" (p. 27). Equally, on a societal level it is possible to have attributes consistent with both constructs. This may be a result of an increase in contact between individualists and collectivists. Hence, the placement of countries and individuals on one end of the dimension may not sufficiently encompass universal goals and values (e.g. the world at peace, social justice, preservation of nature) (Berry et al., 1997). Research focused on the combination of the advantageous qualities of individualism and collectivism is called communitarianism (Triandis, 1995).

See Also

Allocentrism vs. Idiocentrism
Idographic vs. Nomothetic Research

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Personality and Geography

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Geographical Variation in Personality

For decades, research in the geographical sciences has documented regional variation in political attitudes, educational attainment, social tolerance, and disease death rates. Importantly, research in personality psychology has established robust associations between certain personality traits and political orientation, academic performance, occupational preferences, prejudice, and health. To what extent do regional differences in macro-level outcomes reflect the psychological characteristics of residents?

Research on geographical variation in personality stems from the recognition that various features of the social and physical environment are linked to the ways in which individuals think, feel, and behave. Investigations of geographical variation in personality integrate psychological theories and concepts with different levels of geographic analysis (e.g. nations, states, cities, neighborhoods) by focusing on the spatial distributions of traits and the ways in which they relate to the macro-environment. Research on geographical variation in personality shares some overlap with cross-cultural studies of personality, as both areas focus on associations between personality and the broader environment. But cross-cultural studies typically focus on cultural symbols, practices, and norms whereas geographical comparisons examine issues related to spatial organization (Rentfrow, 2013).

History

Nearly a century ago, social scientists began studying the relations between people and the places in which they live. The focus of the research was to identify the key psychological characteristics that defined and differentiated nations. The studies investigated a range of characteristics, including personality, attitudes, motives, and values. A variety of assessment methods were used, with most studies relying on interviews, observations, and surveys. The information gleaned from the research was thought provoking and controversial, but the findings nevertheless informed psychologists' understanding of culture, group conflict,

economic prosperity, and personality. Ultimately, however, the research had limited impact in psychology and interest in geographical differences faded away (LeVine, 2001).

The early attempts to identify meaningful geographical differences in personality were laudable, but they lacked a robust model for conceptualizing personality and reliable methods for assessing it. So, in the years that followed, personality scientists actively worked to develop an empirically based model for conceptualizing the structure of personality. Eventually, all that work led to the establishment of the Big Five framework, which conceptualizes individual differences in personality in terms of five broad traits: extraversion, agreeableness, conscientiousness, neuroticism, and openness. A number of measures have been developed to assess individual differences in the Big Five, and research indicates that the traits are relatively stable over time and linked to cognition, emotion, and behavior. The establishment of the Big Five framework has led to renewed interest in geographical differences in personality, with researchers returning to the challenge of identifying the key psychological characteristics that define and differentiate nations.

Mapping Geographical Differences in Personality

Currently, geographical comparisons of personality are usually based on self-reports of the Big Five personality traits. Specifically, the self-reports of residents in a region are averaged to produce a mean score for a particular personality trait. This is done for every region so that mean scores for each personality trait are computed for every region represented in the sample. This approach allows researchers to make comparisons of the mean personality traits of residents in different regions. For instance, we might observe that California has a high-mean level of openness based on responses from a sample of California residents compared to the mean levels of openness for other states. In addition to comparing regions in terms of their mean-level personality traits, regional personality data can be merged with secondary data sources to examining associations between the regional psychology and macro-level indicators.

A number of investigations have compared personality traits across nations, states, and counties. National comparisons of personality have revealed differences for each of the Big Five traits. For example, people who live in parts of Asia score low in Extraversion, suggesting they are, on average quiet, reserved, and unassertive compared to residents of other nations. People living in nations in Central and South America score high in openness, suggesting they are curious, creative, and unconventional compared to residents of other nations. People who live in nations in Southern and Eastern Europe score high in neuroticism, suggesting they are anxious, easily upset, and prone to depression (McCrae & Terracciano et al., 2005).

Just as nations differ in personality, so too might regions within nations. Indeed, a number of studies have revealed systematic variance in personality traits across states in the United States, local authorities in Great Britain, and federated states in Russia. Among the Big Five domains, neuroticism and openness show the distinct geographical clustering. In the United States, neuroticism is comparatively high from the Middle-Atlantic regions (New York, Pennsylvania), across the Midwest (Michigan, Ohio), down to the South (Louisiana, Mississippi), and gradually declines westward, with low levels on the West Coast (California, Washington). Openness is high in the more urban and ethnically diverse

areas in New England (Massachusetts), the Middle-Atlantic (New York), and West Coast (California). In Great Britain, neuroticism is high in the East of England and Southwest Wales, and low in Southwest England and Scotland. And openness is high primarily in urban cosmopolitan areas, including London, Brighton, Manchester, and Glasgow.

Links between Geographical Personality and Macro-level Outcomes

Given the evidence that personality is geographically clustered, it is reasonable to consider whether the variation is linked to important macro-level variables. A central aspect of research in this area is to examine the degree to which geographical variation in personality relates to important political, economic, social, and health outcomes. For example, are statewide differences in voting patterns in US presidential elections related to the personality traits of residents? Are regional disparities in health related to psychological well-being? Analyses that address such questions have the potential to shed light on the ways in which personality traits become expressed in behavior and also the ways in which individual characteristics relate to broad social, economic, and political forces.

However, when working with variables that can be measured at multiple levels of analysis (e.g. at the levels of individuals and nations), researchers may assume that findings from one level also apply at another level. But the different levels are logically independent from one another. A failure to recognize this logical disconnection can lead researchers to make incorrect inferences about individuals on the basis of aggregate-level data (i.e. the ecological fallacy) or incorrect inferences about aggregates on the basis of individual-level data. This logical disconnect was famously demonstrated over half a century ago in a classic study by Robinson (1950), where he showed that the ecological (i.e. aggregate-level) correlation between the percentage of foreign-born state residents and the percentage of illiterate state residents was –.53, but that the individual-level correlation between foreign-born status and illiteracy was .12. The ecological fallacy would be committed if one assumed, solely on the basis of the ecological correlation, that foreign-born residents were more literate than native-born residents. Likewise, the individualistic fallacy would be committed if one were to assume, solely on the basis of the individual correlation, that regions with large foreign-born populations have low literacy rates. Thus, associations between aggregate-level personality (e.g. conscientiousness) and macro-level behaviors (full-time employment status) do not necessarily mean that individuals who possess a trait are more likely to engage in that behavior.

Several studies have investigated associations between aggregate personality traits and various political, economic, social, and health indicators. Results from these studies show that mean-level openness is positively associated with liberal political orientation, innovation, and cultural diversity. These associations generalize across analyses of nations, US states, and British local authorities. There is also evidence from studies in the US and Great Britain that economic prosperity is related to the prevalence of individuals with an entrepreneurial psychological profile (defined by high openness, conscientiousness, and extraversion, and low neuroticism and agreeableness) in the region. There is also evidence from analyses of personality variation across districts of London that there are comparatively large proportions of people high in openness living in more ethnically and culturally diverse parts of London. Taken together, results from research in this area suggest that

regions high in openness have large proportions of individuals who actively support liberal political causes, and are tolerant of social, ethnic, and religious diversity.

Many studies have also established robust associations between regional psychological characteristics and various health indicators. Analyses of American states and British local authorities indicate that in areas with high levels of neuroticism, residents have shorter life expectancies and are at greater risk of developing serious illnesses and diseases compared to residents of areas where neuroticism is low. Moreover, analyses of nations, and American states, counties, and cities have revealed positive relationships between subjective well-being and physical health. Overall, research in this area suggests that the psychological health of a population is directly linked to physical health and longevity.

Causes of Geographical Variation in Personality

What are the mechanisms responsible for geographical variation in personality? Research in the area has identified three key mechanisms behind the regional clustering. One mechanism is social influence. The idea behind social influence is that the actions of people within the local environment have an impact on the ways in which other people think, feel, and behave. Numerous studies in social and cultural psychology have shown how social norms encourage certain types of behavior, which can lead individuals to internalize the norms and behave in certain ways. There is also evidence from research on social networks and inter-group relations showing that emotions spread through social networks, such that individuals "catch" the emotions of the people they are around. Thus, social influence contributes to regional variation in personality through norms, institutions, and contagion.

Another mechanism responsible for geographical variation in personality is ecological influence. The idea behind ecological influence is that cognitions, emotions, and behaviors are influenced by features of the physical environment, such as climate, terrain, green space, and urban crowding. Recent evidence suggests that living near open green spaces, like parks or nature preserves, enhances feelings of well-being and reduces stress. A growing body of research on pathogen prevalence and personality indicates that in regions with long histories of disease causing pathogens, individuals adapted to the health risks by developing more cautious and risk-averse traits, such as low extraversion, high conscientiousness, and low openness. Furthermore, large-scale national studies indicate that people who live in parts of the world with demanding climates and few natural resources adopted more communal and collectivistic values in an effort to survive the harsh living conditions.

The third mechanism that contributes to geographical variation in personality is selective migration. Whereas the other two mechanisms emphasize the role external forces play in shaping individuals, selective migration focuses on the active role individuals play in choosing environments. The assumption behind selective migration is that people choose to live in places that satisfy their needs. A number of studies have focused on the personality traits associated with residential migration. The results from those studies suggest that people high in openness and extraversion are drawn to culturally diverse urban environments compared to individuals low on those traits. And people high in agreeableness tend to be drawn to areas whether they have family and friends. There is also evidence that people choose to live in neighborhoods where residents are believed to share the political

views. Taken together, these studies suggest that psychological characteristics influence the decisions people make about where to live, which, at the level of populations, could contribute to geographical clustering of personality.

See Also

Big Five
Culture and Personality
Trait Theory of Allport

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Personality Psychology in Japan

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Introduction

Similar to many other cultures, people living in Japan have long been contemplating and accumulating various ideas about the human mind and personality. When Japan opened the gate of the country to the world in the Meiji Period (1868–1912), knowledge of modern psychology came to be accepted and the psychological view of personality also became popular. Over the next 100 years, various pieces of knowledge of personality psychology have come into and been spread throughout Japan. At the same time, some Japanese personality psychologists have created original theories and generated considerable researches regarding personality psychology. Personality psychology holds an important position in the study of psychology in contemporary Japan. This section will review briefly the history of Japanese personality psychology and reflect on review its present status and the future directions.

Japanese Words of Personality

The two words, *sei-kaku* (性格) and *jin-kaku* (人格), are representative of meaning personality in Japanese. They are Japan-made Chinese words, which were created as equivalent words in translation for personality in English and German when Western culture came into Japan during the Meiji Period. The "*sei*" in *sei-kaku* means nature of human beings, "*jin*" in *jin-kaku* represents person, and "*kaku*" indicates its level and grade. The *jin-kaku* is often used as an equivalent for the English word "personality" and the *sei-kaku* is for the English "character." However, the *jin-kaku* has an evaluative meaning similar to "man of personality" in English and creates some confusion regarding the usage of the words. Therefore, the English word "personality" is often used as it is in

psychology in contemporary Japan. There are also some other words regarding the meaning of personality. *Ko-sei* (個性) means individuality, and *kojin-sa* (個人差) represents individual differences. The word *hito-gara* (人柄) dates from earlier times than the other words explained in this section; *hito* means person and *gara* indicates its texture. The word *ki-situ* (気質) is an equivalent of the English word "temperature"; means spirit and *situ* represents quality.

History of Personality Psychology in Japan

Original personality theories have existed in Japan since the feudal era. Two books written in the sixteenth century, *Jinkokuki* and *Koyo Gunkan*, have dealt with the topic of personality. The former focused on different personalities and the value systems of people living in different providences, whereas the latter focused on the personality types of Samurai.

Yuzero Motora (1858–1912), the first modern psychologist in Japan, earned his PhD degree at the Johns Hopkins University. While studying psychophysics under the supervision of G. S. Hall, he coauthored an article in the inaugural issue of *American Journal of Psychology* (Hall & Motora, 1887). After returning to Japan, he became the first individual to be appointed Professor of Psychology at the Imperial University (now the University of Tokyo) (Sato, 2005). He demonstrated the important role of personality in the study of psychology by discussing it in many of his books. Later, Motora's many distinguished students developed the concept of personality further and established it among Japanese psychologists and educationalists. For example, Tohru Watanabe (1883–1957) published the first book in the field titled *Personality* in 1912 and also translated Stern's *Personology* into Japanese in 1931.

Clinical and abnormal psychology evolved further in the 1920s. Masatake Morita (1874–1938), a famous Japanese psychiatric practitioner, developed a unique approach for the treatment of neurosis that became to be known as Morita therapy. He hypothesized that there was a specific personality type of neurosis, which is similar to Kretschmer's schizophrenic type of personality (Sato, 2007). Yuzaburo Uchida (1894–1966) modified the Kraepelin Mental Addition Test and developed the Uchida-Kraepelin Psychodiagnostic Test, which has been the most widely administered test in Japan for measuring working ability. In 1927, the Ministry of Education issued a directive stressing the importance of "respect for individuality." Soon after the directive, the number of books with the word "personality" and/or "individuality" in the title increased. However, it decreased again in the late 1930s after an ultra-nationalist regime came to power in Japan.

After World War II ended, the US occupying forces gave instructions for the introduction of a more scientific and democratic education system in Japan, and educational psychology became a core subject of teacher-training courses. The topic of personality and adaptation was regarded as one of the fundamental disciplines of educational psychology taught in these courses. Moreover, new concepts such as counseling and educational measurement were introduced from the United States, along with a wide variety of psychological tests, including the Minnesota Multiphasic Personality Inventory (MMPI) and WAIS.

In the 1970s, the blood-type typology of human character became popular in Japan. This theory was developed initially by Takeji Furukawa (1891–1940), a pedagogist and psychologist, but it was psychologically refuted before World War II. Masahiko Nomi (1925–1981), a popular writer, revived this idea and wrote popular books about this typology. Many

Japanese psychologists worked to reduce the prevalence of this typology with their own theories and newly obtained data. Such a response increased the appeal and presence of Japanese personality psychology to the general public.

In 1992, the Japanese Society of Personality Psychology (JSPP) was established and Professor Taketoshi Takuma (1927–2018) became the first president of the association. Since then, the JSPP has promoted the development of personality research in Japan by publishing *The Japanese Journal of Personality* and organizing annual meetings.

Current Status of Japanese Personality Psychology

Personality psychology in Japan has mainly been influenced by US personality psychology. This influence is exemplified by its time-honored emphasis on conducting scientific research and applying the findings from such research to address important issues throughout society. Such an approach has resulted in the emergence of personality psychology as one of Japan's major research fields of psychology (Sato & Fumino, 2005). The Japanese Union of Psychological Associations has 53 academic societies representing different fields of psychology. With approximately 950 members, the JSPP is smaller than the Association of Japanese Clinical Psychology (about 28,000 members), the Japanese Psychological Association (about 7,700 members), the Japanese Association of Educational Psychology (about 6,400 members), and the Japan Society of Developmental Psychology (about 4,200 members). However, for its relative size, personality psychology is an integral part of psychological studies in Japan.

The flagship journal of the JSPP, *The Japanese Journal of Personality*, was first published in 1993, and it contains approximately 30 research articles every year. The annual meeting of the JSPP tends to feature more than 100 research presentations. In support of its growing presence, other journals and meetings also include a plethora of studies regarding the study of personality psychology.

In one year from 2016 to 2017, there were 107 articles in *The Japanese Journal of Psychology* and *The Japanese Journal of Educational Psychology*, which are major Japanese psychological journals. Of these 107 articles, 51 articles (46.7%) contained constructs and assessment of personality traits, and this publishing trend tends to increase every year Watanabe (2018). There were 657 research presentations at the 58th Meeting of the Japanese Association of Educational Psychology, which was held in 2016, and 237 (36.1%) of them were related to the study of personality psychology Watanabe, Y. (2018). Another emerging trend is for articles written by Japanese personality psychologists to be frequently published in many international psychological journals.

Education and Personality Psychology in Japan

Psychological knowledge is taught in high school throughout Japan. This curriculum contains personality-related knowledge on such topics as frustration, defense mechanisms, Spranger's typology of value attitudes, and Maslow's hierarchy of needs, and these subjects, along with other related topics, are also included in the coverage of college entrance examinations.

More than 200 universities and colleges offer courses of psychology, and most of them include classes in personality psychology. Some of the classes are taught by personality psychologists; on the other hand, there are also personality classes taught by social psychologists, educational psychologists, and clinical psychologists. Certification is conferred by the Japanese Psychological Association after completing a curriculum of psychology courses, including one on personality psychology.

A national qualification to become a licensed psychologist authorized by the Japanese government, was initiated in 2018. A principal requirement for this qualification is to complete a master's program in psychology, which includes completing a course on Psychology of Emotion and Personality. The training program for becoming a clinical psychotherapist, which is accredited by Association of Japanese Clinical Psychology, also requires completing a course on personality psychology.

Knowledge of personality psychology is often taught in educational psychology courses as part of teacher-training programs and separate liberal arts courses. There psychology courses, including personality psychology, in the training programs in medical welfare, such as those for individuals training to become nurses, psychiatric social workers, and care workers.

Research Topics and Future Directions

Aoki (1971) conducted pioneering work using the lexical and factorial approach to explore personality structure in Japanese. Following this research, personality researchers found a Big Five component in the Japanese Five Factor Personality Questionnaire (FFPQ Research Group 1998; Murakami, 2003), constructed original Japanese Big Five scales (cf. Murakami & Murakami, 1999; Wada, 1996), and translated into Japanese Big Five scales developed in other countries (cf. Oshio, Abe, & Cutrone, 2012; Shimonaka, Nakazato, Gondo, & Takayama, 1998). The Big Five personality structure is broadly accepted in the contemporary study of personality psychology throughout Japan.

From the early 2000s, the positive psychology movement had also been widespread in Japan as an extension of personality psychology, resulting in the development of considerable research and numerous published articles on such topics as resilience, well-being, happiness, and quality of life. Recently, some economists and educational practitioners also have focused on noncognitive skills relating to personality traits such as grit, self-control, and conscientiousness, which are garnering increased public attention in Japan. Alternatively, other researchers are also interested in dark personality components such as the Dark Triad (narcissism, psychopathy, and Machiavellianism).

Personality psychology in Japan is now a developing field in academia. To continue this trend, it will require Japanese personality psychologists to participate in international collaborative studies. It will also be necessary for personality psychologists to collaborate not only with other psychologists, but also with researchers in other related disciplines such as neuroscience, medical science, epidemiology, pedagogy, economics, and political science.

See Also

Big Five
Dark Triad
Minnesota Multiphasic Personality Inventory (MMPI)
Personality and Positive Psychology
Personality Psychology in Africa
Personality Psychology in Central and South America
Personality Psychology in Islamic Countries
Wechsler Adult Intelligence Scale-IV (WAISC-IV)

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Personality Psychology in Africa

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Introduction

The notion of personality as a psychological attribute of an individual is widely endorsed as a universal human quality (McCrae, & Costa, 1997). People seem to have consistencies in their self-presentation which mark them as different from others, even within circumscribed cultural settings. With this understanding, personality would be a quality intrinsic to the person and likely unchangeable, but influenced in its expression by context or setting. However, only three of the Big Five personality factors were transportable across language groups (De Raad, Barelds, Mlačić, B., Church, Katigbak, Ostendorf, Hřebíčková, Di Blas, & Szirmák, 2012), suggesting a need for caution in assuming personality to carry the same meaning across cultures. What is of continuing interest to cultural studies on personality is to define the core qualities of personality and the specific ways it is understood and appreciated by members of different cultural communities (Schwartz, Zamboanga, & Weisskirch, 2008; van der Merwe, Ntinda & Mpofu, 2015). In African culture heritage communities (with the caveat that there would be subcultures allowing for different shades of understanding), personhood (way of being) likely is the way personality is understood and appropriated. African cultural heritage settings are diverse in their geographical location to include people of African ancestry on mainland Africa and the diaspora. They also are diverse in cultural expression while with a shared underlying ancestral value system rooted relational personhood or in which a person is mutually actualized in social participation with others.

Personality in Personhood

Personhood in African heritage culture settings is an expressive quality of being which is defined by social awareness and responsiveness in the context of mutual interdependency with others (Simões, & Alberto, 2015). This relationship-oriented conception of personhood is valued in collectivistic culture settings (Mpofu, Ntinda, & Oakland, 2012; Serpell, 2011).

Personhood is a broader concept and inclusive of personality and essentially learned, allowing for functional understanding of how to be a person and with what cultural instruments. It is a "thinking-on-your-feet" person ability quality acquired through deep cultural immersion or lived enculturation by and with community others. A person acquires personhood over time sub-serving intrinsic psycho-behavioral qualities (personality) to relational being affordances such as common good.

In the sub-Saharan African cultural community setting, the pan-cultural concept of *ubuntu* (personhood) stands for grounded learning and enactment of socially primed personal assets for collective welfare. For instance, one has *ubuntu* to the extent that he or she in meeting own personal needs is also sensitive to those of socially networked others (Letseka, 2012). As an aspect of *ubuntu*, personality is only an aspect of personhood and less determining of what a person does or how a person understands the him or herself. Thus, in African cultural heritages, personality cannot fail an individual or be singularly blamed for social outcomes. Rather, gaps in personhood development or lapses in personhood-centric behaviors explain person failures. Conversely superior personhood qualities explain constructive personality for the common good.

Personality in Person Styles

In African cultural heritage settings, to know a person well is to understand his or her temperament and social preferences. From that cultural perspective, the prioritization of preference choices is through pathways to relational being-ness with others based on both natural inclination (personality) and social learning. In other words, temperament styles are in fact person styles giving expression to whom or what a person is.

Temperament styles with evidence in African heritage settings are the four bipolar traits: extroversion (E) or introversion (I), practical (P) or imaginative (M), thinking (T) or feeling (F), and organized (O) or flexible (L) styles (Mpofu, Oakland, & Gwirayi, 2010). These four bipolar styles are defined as follows: extroversion-introversion (where we prefer to obtain energy), practical-imaginative (how we prefer to process and retain information), thinking-feeling (on what we prefer to make decisions), and organized-flexible (when we prefer to make decisions). In cross-section of studies of African countries, teenagers expressed a preference for introverted, organized, practical, and thinking person styles than contrasting styles (Africa Scholarship Development Enterprize; ASDE, 2014; Mpofu et al., 2009).

Spiritual Personality

In African cultural heritage settings, an additional bipolar style appears applicable: spiritual-hedonistic (where we prefer to ascribe our metaphysical or social outcomes) (ASDE, 2014; Silva, & Laher, 2012). For example, Botswana teenagers preferred a spiritual rather than hedonistic person style from the high importance ascribed to spiritual life in that cultural setting.

Nsamenang (2006) described three levels in the evolution of spiritual-social self among African cultural community members to encompass spiritual selfhood, social-experiential selfhood, and ancestral selfhood. Spiritual selfhood is believed to originate at conception or perhaps even before conception as in the reincarnation of an ancestral spirit

at conception. A significant milestone in the evolution of spiritual selfhood is when a newborn is ceremoniously welcomed into the family and community and given a name, which might be of a significant spiritual other in the family (e.g. a departed ancestor). Social or experiential selfhood is acquired from relational learning with community others. Ancestral selfhood is omnipresent in the affairs of the living influencing their choices in enacting personhood (Eze, 2015). At the person level, one's ancestral selfhood begins with biological death and may be continued with reincarnation (Eze, 2015; Nsamenang, 2006). Thus, ancestors as the "living-dead" can potentiate personality and person styles for optimal lived personhood in the cultural community.

Individual Differences

In African cultural heritage settings, personhood qualities are aspirational so that people vary in the extent to which they adopt and translate personhood values to guide their individual conduct. This would explain the diversity of person qualities among members of the same cultural collective in their personal-stylistic qualities. van der Merwe et al.(2015) propositioned that individual differences in expressive personality are also explained by personal modernity or the extent to which individuals identify with global rather than traditionalist culture. As a matter of fact, African community member personhood is likely to be adaptive and selecting attributes to optimize personal functioning in both traditionalist and global culture.

Current Research Approaches

One window to understanding cultural personhood in African culture heritage settings is through their language for constructing notions of personality (Silva & Laher 2012). Consequently, lexical approaches are increasingly used for unravelling the content and structure of personality in African cultural heritage settings (Fetvadjiev, Meiring, van de Vijver, Nel, & Hill, 2015; Hill, Nel, van der Vijver, Meiring, Valchev, Adams, & de Bruin, 2013).

A lexical approach to studying psychosocial phenomena is premised on the assumption that cultural community member understandings are embedded in the semantic meaning of specific language communities (Cheung, Van de Vijver, & Leong, 2011). For example, Nel, Valchev, Rothmann, Van de Vijver, Meiring, & De Bruin (2012), Hill et al. (2013) and Valchev, Nel, Rothmann, van de Vijver, Meiring, & De Bruin, 2013) carried out lexical studies of personality among 11 South African indigenous language groupings (Nguni, Tswana, Sotho Zulu, etc.) to construct the content and structure of personality from the perspective of the cultural community members (n >6735). They utilized semi-structured interviews in which they asked each participant to describe his/her own personality as a sibling, parent, other family relation best friend or other acquaintance would. They concluded from the data that the language culture communities understood personality structure to be defined by nine personality clusters: emotional stability, extraversion, facilitating, conscientiousness, integrity, intellect, openness, relationship harmony, and soft-heartedness. Conscientiousness was defined by a continuum of attributes in personal orientation to achievement (upper-end), dedication, orderliness, self-discipline,

thoughtlessness. Emotional stability was represented on a continuum of attributes from having emotional balance through neuroticism. The extraversion cluster included a range of attributes of assertiveness from dominance to sociality, the facilitating cluster from guidance to encouraging others, the relationship harmony cluster from approachability to meddlesomeness, and the soft-heartedness cluster from empathy to hostility. The personality clusters of integrity, intellect, and openness did not define in attributes on a continuum. Integrity was defined by moral consciousness and fairness, Intellect by attributes of mental discernment from appreciation of aesthetics to social intellect. Quite clearly, relational being is well represented in at least five of the nine constructions of personality (facilitating, integrity, openness, relationship harmony, and soft-heartedness) as understood by native Africans.

Future Directions

The nine-factor characterization of structure of personality among African cultural heritage communities and the content that defines personality attributes goes beyond the Big Five (or Big Seven factor) models reported from Western studies of personality. Of particular significance is that the content that defined a similar-label personality factor in Western cultural settings is different in the African cultural heritage settings of study, and aligned to personology as enacted personality within a cultural setting. Future studies could examine high frequency endorsement of specific personhood attributes to define the salience of the specific person qualities in a cultural setting. Person style also appears to be a broadly serviceable construct in understanding personality in African cultural heritage settings, and studies are needed to map expressive personality over the life span. Specifically, evidence is needed on evolution of these person style preferences over the life span in African cultural heritage settings. Such evidence would add to an understanding of how personality expression through person styles changes over time in the context of personal, collective, and spiritual learning (see also Soto, John, Gosling, & Porter, 2011; Edwards et al., 2014).

The conceptualization personality as an aspect of personhood is likely to be widely shared by African heritage cultural communities whereas the specific indicators are likely to be culturally nuanced.

See Also

Individualism vs. Collectivism

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Personality Psychology in China

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The Sage and Junzi Characteristics

In ancient China, there was no such term as *personality*. However, the concept of "character of a person" has been popular among both scholars and ordinary people. In Chinese traditional culture, "character of person" signified two things: first, it indicates the unique characteristics of a human being. It is the character that differentiates human individuals from animals; second, it emphasizes moral values that human individuals should follow when interacting with others in families and societies. The most-valued Confucian character is that of a Sage. A Sage's character must manifest the morals of "benevolence," must hold the principles of "being Sage inside and being kingly outside," and must cultivate the thinking habits of introspecting oneself every day. All of them would produce a perfect and complete personality, and be an ideal example of good character for the Chinese to survive well in the culture.

Of course, this ideal character of Sage could not be easily cultivated for the common people. Therefore, Confucianism designed another more accessible standard to be a person with good character, which was called *Junzi*. According to Confucius, Junzi possesses attributes of "compatibility and harmony" (according to Dainian Zhang), which enable them to deal with various relationships, such as those between heaven and human beings, self and others, mind and body, etc. In fact, the character of Junzi should not only behave in the manners of benevolence, love, equality, respect and mercy, but also should have characteristics that promote mutuality, interdependency, and harmonious development interpersonally. Throughout the history of China, the "character of Junzi" has always been regarded as a model personality among scholars.

The Development of Modern Personality Psychology in China

The Start of Modern Personality Psychology in China

The first Chinese self-edited psychology textbook for college students, *Psychology Outline* (by Daqi Chen) was published in 1918. The book comprehensively introduced the latest knowledge and achievements in Western psychology at that time, which touched on some of the personality constructs. In fact, before the publication of this textbook, the term "personality" had already been translated into Chinese from a Japanese psychology textbook.

Between 1920s and 1930s, questions such as "whether personality is determined by heredity or the environment" and "whether the success of an occupation is dependent on one's ability or personality" were raised up among Chinese psychological researchers. Against this background, some translated personality tests gradually appeared after 1941, such as Pressey's XO Test of Emotionality, Marston's rating scale of introversion and extroversion, etc. Here, the Chinese Test Association (CTA) played an important role. In 1942, the China Human Affairs Psychology Research Institute was launched at the thirtieth year of the Republic of China, which aimed to study officers' emotional abilities, personalities, and characteristics. Meanwhile, some Chinese researchers had also introduced qualitative personality tests into China, such as the Rorschach Test and the Thematic Apperception Test, after World War II.

Interestingly, a research project was conducted in 1939 by Professor Chuanding Lin to analyze the 34 famous people in Chinese history from the Tang dynasty to the Qing dynasty by using a psychological assessment of 50 traits with 10 different types. The traits included curiosity, struggle, physique, emotion, arbitrariness, gentleness, suggestibility, adaptability, ambition, etc.

The Application of Western Personality Theory and Scales in China

Since the 1960s, a group of students, after completing their study of personality and social psychology in Europe and the United States, returned to Hong Kong and Taiwan, and started to systematically introduce Western, especially American, personality and social psychology theory to the Chinese. The most famous representative in Taiwan was Professor Kuo-Shu Yang of Taiwan University. He cooperated with others to conduct a series of researches on "Chinese personality." For example, he explored in many ways the relationship between social transition of modernization process and the Chinese personality. Since 1965, he focused on national characters, the Chinese and their adaptability to modern life, the relationship between changing values and personality during modernization, the concept and measure of individual modernity, and the impact of individual modernity on social attitude and behavior, etc. In the 1980s, Professor Fanny M. Cheung from the Chinese University of Hong Kong introduced the Minnesota Multiphasic Personality Inventory (MMPI and MMPI-2) into Hong Kong, and then in collaboration with Professors Weizhen Song and Jianxin Zhang from Institute of Psychology, Chinese Academy of Sciences, they conducted several rounds of restandardization of the Chinese version of MMPI-1 and MMPI-2 in Mainland China. Up to now, the instrument is still a primary tool for personality diagnosis by Chinese clinical psychologists.

   Study of personality psychology in mainland China boomed in the 1980s. Mainland scholars introduced and translated a large number of Western personality assessment scales into Chinese, and conducted empirical studies to test the usability of these scales among Chinese people. The scales included EPQ, 16PF, and so on, in addition to the MMPI. The Five Factor Model (FFM) was introduced much later in 1994 in the *Journal of Advances in Psychology* (in Chinese) for the first time, and then the FFM has been extensively used in various situations and samples people. As one of the most popular personality measurements, the five factors were shown to be important personality dimensions for predicting key outcomes in research on subjective well-being, mental health, interpersonal relationships, social behaviors, and various performance evaluations, etc.

The Localization Movement of Chinese Personality Research and the Indigenous Personality Constructs

Personality traits are all related in some ways to the cultural patterns of the people concerned. With the rise in economic development in East and Southeast Asia, scholars from the region, including those from Japan, Korea, Singapore, Taiwan, and Hong Kong, realized that although it was unavoidable to learn, imitate, and borrow Western personality theories during the early stages of the formation of Asian theories of personality in general and Chinese theories in particular, it would be inevitably biased if only Western theories and tools were used to describe and measure the Chinese, which may lead to "false consensus effect" or "intercommunity cheating." Therefore, the "localization movement" of distinctive Chinese personality research was developed vigorously. Some representative works included David Yau Fai Ho and Ruey-Ling Chu's research on face; Kwang-Kuo Hwang and others' research on *Renqing* (relationship orientation); Kuo-Shu Yang, Kuang-hui Yeh, and others' research on filial piety; Kuo-Shu Yang and others' research on individual traditionalism; Michael H. Bond, Kwang-Kuo Hwang and others' research on harmony; Michael H. Bond and others' Chinese Value Survey; Chung-Fang Yang and others' research on *zhongyong* (the Doctrine of the Mean); Fanny M. Cheung and others' research on interpersonal relatedness and Guanxi (relation orientation) in management, etc. Listed below are some of these important Chinese indigenous personality constructs that have been studied empirically.

Renqing (Relationship Orientation)

Renqing means a reciprocal relation between individual persons. When individual is engaged in a social exchange, he/she has some resources to give to others, and expects to establish a long-term relationship with others instead of exchanging some other resources from others in return. The resources include not only money, valuable goods, and services, but also affect, social support, even love. It is demonstrated that Western individuals' interpersonal relations are based more on the principle of equal exchange. They prefer something in return equivalent to what they have given to others. So, the relationship emphasizes much more rationally debt-avoidance and fairness. In contrast, Chinese *Renqing* features a long-term and continuous relationship, so that people in such a relationship should not want to get the resources they like immediately, and even more, they sometimes tend to give more to others and want nothing back from them. Therefore, raising an invoice or squaring an account is considered an unkind and an impersonal manner of interpersonal behaviors.

That is why the Chinese *Renqing* strategy is to maintain a dynamic balance in the relationship network. As an indigenous personality trait, *Renqing*, a culturally relevant Chinese characteristic has permeated deeply through individuals, who, in most cases, will abide by the cultural norms including modest etiquette, resources exchange, cooperating and maintaining relationships, nepotism, etc.

Face

In Chinese culture, face is a dominant concept to guide interpersonal behaviors. In contrast to the Western concept of face, the concept of face in Chinese culture is more interpersonally connected. Face is not only related to an individual's status level in the social relation network, but also involves the possibility that he or she might be accepted by others and what the privileges are that he or she might have. Therefore, it is important for the Chinese to "care about their face" because others' opinions are closely associated with their self-esteem. People not only pursue a good face in normal times but they are also positively dedicated to contend for face in case of losing their face. "Saving face" and "earning face," or even "give face" get a constant training in the "hierarchical order" in Chinese culture.

Harmony

Respecting and upholding harmonious relations with other side of the world, with other people, and with oneself has always been hailed as a fine Chinese tradition in philosophy and culture. Harmony is precious; endurance makes peace; make concessions to avoid trouble; stand aloof from worldly success; live in harmony; always be calm; a contented mind is a perpetual feast; avoid offending others etc. All of these are fundamental principles for the Chinese to conduct themselves. Therefore, Chinese harmony is reflected in two ways: first, it is inner calmness and harmony and second, the interpersonal concordance.

Exploration of the Personality Structure of Chinese People: CPAI and the Sixth Personality Factor

The goal of the CPAI was to construct an inventory that is relevant to the Chinese cultural context, and would also meet the scientific psychometric standard expected of established assessment instruments, in order to provide Chinese society with a reliable, valid, and useful personality measure. CPAI was initiated in the early 1990s, and its development has been continuing in Hong Kong and in Mainland China. Professors F. Cheung, W. Song, K. Leung, and J.X. Zhang, and others, led the research to devise a second version of CPAI.

The CPAI was constructed by adopting a combined etic-emic approach – an approach that takes into account both universal and culture-specific aspects of the Chinese personality. The CPAI included four normal personality dimensions: social potency, dependability, accommodation, and interpersonal relatedness. What is worth mentioning is that "interpersonal relatedness" (IR) contained many indigenous personality constructs. It showed the pattern of behavior and the cultural connotation of how Chinese people "conduct themselves" in society, such as caring about relationship orientation, avoiding face-to-face conflicts, maintaining surface harmony, while everyone was able to maintain their "face" in the society. Interestingly enough, the joint factor analysis of CPAI and FFM showed that while the four CPAI factors overlap with the Big Five, the IR factor from CPAI stood out as

an independent factor in addition to the Big Five Personality Model which constitutes a "Big Six" structure that can be used to describe and explain the Chinese personality and behavior. Up to now, CPAI-2 has been translated into English, Japanese, Korean, Vietnamese, Dutch, and Romanian, etc. After applying the translated versions to corresponding cultural groups, the IR factor can still be retrieved in some non-Chinese samples. The utility of the IR factor has obtained noticeable empirical support and application validity.

Though the CPAI is aimed to be applied to other cultural backgrounds, the effective use of the IR inventory in both Chinese and Western cultural backgrounds indicated that it can reveal some deficiencies in Western personality theory and evaluation, which is inclined to focus on intrapsychic and individual traits related to heredity, thereby ignoring the important fields involving social culture and interpersonal relations. These findings prompted the CPAI team to consider the cross-cultural applicability of CPAI-2, which was later renamed the "Chinese Personality Assessment Inventory" as the "Cross-cultural (Chinese) Personality Assessment Inventory." The CPAI-2 is widely recognized to be a useful personality measure that covers culturally relevant dimensions of the Chinese personality, which demonstrates incremental validity beyond Western models of personality.

Other Personality Researches in Contemporary China

The Seven Factor Personality Model

Based on adjective descriptions, a personality test (Qinnian Zhongguo Personality Scale, QZPS) was compiled to measure the Chinese personality, which resulted in a seven-factor structure of personality, including the factors of Extraversion, Human Relations, Behavior Styles, Talents, Emotionality, Kindness, and Ways of Life. The advocates of the model (Dengfeng Wang and others) believed that the difference between the Seven Factor and the Big Five Personality Models demonstrated exactly the well-documented difference between the Chinese and Western people. They concluded Western personality scales are unsuitable for measuring the Chinese personality.

Self-Supporting Personality

Self-supporting personality is valued by Chinese traditional culture, and it is considered as a positive personality construct and an important part of sound personality. Self-supporting personality is a comprehensive personality factor featuring independence, initiative, responsibility, flexibility, openness, etc., which exist in both individual and interpersonal lives when people settle problems during their survival and development. Professors Xiting Huang and Lingxiang Xia developed corresponding Self-Supporting Personality Scales based on the personality construct. Corresponding research shows that the self-supporting personality has 10 traits; all of which are relatively independent and can be divided theoretically into two factors: interpersonal independence and personal independence. The interpersonal independence contains five traits: interpersonal self-reliance, interpersonal initiative, interpersonal responsibility, interpersonal flexibility and interpersonal openness. Personal independence also consists of five traits: personal self-reliance, personal initiative, personal responsibility, personal flexibility and personal openness.

See Also

Minnesota Multiphasic Personality Inventory (MMPI)
Personality Assessment Inventory (PAI)
Personality in Culture
Revised NEO Personality Inventory (NEO-PI-R)

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Personality Psychology in Central and South America

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Central and South America encompass a large geographical area with great diversity in their populations. Not including the Caribbean, there are 18 countries within both regions that have an estimated total population of 600 million people (United Nations Demographic Yearbook, 2015). Although Spanish is the official language of the majority of the countries in both regions, many other languages are also spoken throughout Central and South America including Dutch (Suriname), English (Belize, Guyana), French (French Guiana), and Portuguese (Brazil). In addition, many people across both regions speak an indigenous language, sometimes in conjunction with and sometimes instead of the official language. It is estimated that over 4.5 million people speak a Mayan language in Central America. In Guatemala alone, there are 21 indigenous Mayan languages as well as two additional languages: Garífuna and Xinca. In South America, approximately 350 languages are spoken. Close to 20 million people speak an indigenous language in that region, with the most widely used languages being Quechua (actually a family of languages), spoken in Bolivia, Ecuador, and Peru; Guaraní, an official language of Paraguay also spoken in Argentina, Bolivia, and Brazil; and Aymara, which is spoken in Bolivia, Chile, and Peru.

Religion in Central and South America has historically been predominantly Catholic. Catholicism continues to have a strong presence in the region, although Protestant denominations have been increasing in numbers since the latter part of the twentieth century. In addition, there has been an increase of people that do not identify with any religion. The racial, ethnic, and national background of people in Central and South America varies greatly depending on the region. European, African, and indigenous backgrounds are the most common, but there are also descendants of Arabs, Jews, Chinese, and Japanese. Estimates of indigenous populations vary greatly depending on how indigeneity is defined and measured. There is also a wide range of socioeconomic inequities among people and countries in the region and a sizable portion of the population live at or below the poverty level. For example, in 2015 the highest gross domestic product (GDP) per capita in the region was $31,700 (Chile) while the lowest was $4,850 (Honduras). Meanwhile, 28% of the

total population lived in poverty and 12% lived in extreme poverty or indigence in 2014. It should be noted that the percentage of people living in poverty in some countries, mostly in Central America, exceeded 50% (Guatemala, Honduras, Nicaragua), while in other countries, mostly in South America, it was below 10% (Argentina, Chile, Uruguay). Given the wide range of languages, religions, ethnicities, and GDP across the region, developing an entry on personality psychology that captures the great diversity within Central and South America is a sizable challenge.

As can be expected considering the vast diversity that characterizes Central and South America, there is not a single, commonly agreed on definition of what constitutes personality or personality psychology in the region. In fact, the diversity of people in the region is mirrored in its psychology as a discipline. While primarily influenced by European psychology and later by psychology from the United States, there are also a range of psychologies that are readily identifiable as Latin American, which, in turn, have contributed to the understanding of personality and personality psychology in the region. Perhaps most noteworthy in the personality psychology literature from Central and South America are the tensions between alternating emphases, such as individualism versus collectivism; cultural universals (etic and imposed etic) versus culture-specific (emic) dimensions; individual traits versus national character; the individual versus contexts and interactions; nomothetic versus idiographic approaches; the use and standardization of personality inventories versus the recognition of subjectivity, life narratives, and cultural differences within a historical-cultural perspective; the pursuit of cultural adaptation versus cultural transformation, and many others.

Personality Traits and Assessment

Many psychologists in Central and South America have explored and contributed to the literature on personality traits, be that at the theoretical level or at the use and adaptation level of a considerable range of personality inventories. The Big Five personality traits or Five Factor Model (i.e. neuroticism, extraversion, openness to experience, agreeableness, and conscientiousness) have received sizable attention and psychologists such as Chilean Enrique Barra and Argentine Marcos Cupani and collaborators have used and adapted the corresponding assessment instruments (such as the NEO-PI-R, IPIP) to assess life satisfaction and psychological well-being, predict school performance, particularly mathematics, and facilitate vocational orientation and career choices. Some cross-cultural studies in the region have shown that the five-factor structure is retained across groups and captures peoples' emphases on openness in the region, contrasted with other parts of the world. Other studies have challenged those findings based on the markedly limited representativeness of the samples utilized in most studies made of largely literate, college students, and urban people. These other studies have offered alternative factor structures such as prosociality, and industriousness based on their findings from different samples that included illiterate and indigenous groups (e.g. Gurven et al., 2013).

Central and South American psychologists have also utilized Eysenck's Personality Model, together with its Questionnaire and Scales (earlier EPQ, later EPS, including psychoticism, extraversion, and neuroticism) in an effort to assess individual differences in

the region. Sybil Eysenck, the widow of Hans Jürgen Eysenck, together with several Latin American colleagues such as Nicholas Tarrier from Brazil and María Asunción Lara Cantú from Mexico, conducted cross-cultural studies using the EPS in the latter part of the twentieth century. The findings from those studies underscore limited cross-cultural differences or limitations in the instrument to detect them. Vanina Schmidt from Argentina, Walter Gallegos from Brazil, Clemencia Montaña de Barragán from Colombia, Esperanza Bausela Herreras from Mexico, and Sergio Domínguez Lara from Peru, among others, have assessed Eysenck's theory, and some of them have used its assessment instruments successfully in Latin America.

Beyond the assessment instruments derived from the Five Factor Model and Eysenck's Personality Model, Central and South American psychologists have also utilized and adapted Cattell's Sixteen Personality Factor Questionnaire as well as clinical personality inventories such as the Minnesota Multiphasic Personality Inventory and the Millon Clinical Multiaxial Inventory. Moreover, they have avidly employed projective instruments such as the Thematic Apperception Test and the Rorschach.

Personality and Culture

Psychologists in Central and South America have also pursued the development of indigenous dimensions and measures framed by theories such as ethnopsychology and *mestizo/a* psychology that affirm indigenous (emic) perspectives and out of concern with imposed etic instruments. Rogelio Díaz-Guerrero and his son, Rolando Díaz-Loving, together with Isabel Reyes-Lagunes, all from Mexico, are readily identifiable as three main contributors to this important literature seeking to identify indigenous constructs (e.g. self-subordination, nonassertiveness), self-concepts, and behavioral exemplars as expressed in cultural norms through sayings, maxims, or proverbs ultimately referred to as historic-sociocultural premises. Some of these scientific efforts evolved into concepts such as national character, in an attempt to capture the dialectical relationship between culture and personality (Díaz-Guerrero, 2003).

In their efforts to make sense of the relationship between culture and personality, Central and South American psychologists have resorted to Geert Hofstede's cultural dimensions, particularly individualism-collectivism, Harry Triandis' tight and loose cultures, David Magnusson's holistic and interactionist model, and, more recently, Shalom Schwartz's human values. Over the course of these efforts, Latin American psychologists have emphasized subjective experience, childrearing and family life, friendships, social interaction, socialization, and interdependent selves in contrast to private, autonomous, independent selves in their attempts of not only describing but, most importantly, understanding and conceptualizing personality. Furthermore, these progressive views on personality have resulted in critical analyses of power structures and socio-political processes that bring about human suffering and perpetuate social injustices. Some Central and South American psychologists, influenced by the work of educator Paulo Freire, have sought to foster conscientization (the ongoing process of acquiring a critical consciousness), self-determination, and community agency to redress oppression and exploitation through emancipatory practices that are articulated in liberation psychology (Martín-Baró, 1996).

The advent of qualitative research methods has transformed knowledge generation in personality psychology where instead of asking participants to respond to pre-formed items they now share their own perspectives and construction of reality in the context of semistructured interviews and community based participatory action research.

Personality Disorders

Personality disorders have not been considered a central focus in the general field of psychopathology or in epidemiological studies in Central and South America. In fact, some of the best-known studies on the prevalence rates of mental health disorders in the region do not include data on personality disorders. The field of psychology in Central and South America has only very recently begun to study these disorders. For a long time, personality disorders were primarily within the field of psychiatry, and particularly from a psychodynamic perspective. For example, the region's representative to the International Society for the Study of Personality Disorders, Argentine psychiatrist Néstor Koldobsky, published one of the first specific texts on the subject as did fellow psychiatrists Francisco Berdichevsky Linares and Gustavo González Ramella.

Since 1980, however, Central and South American psychologists in clinical practice have been actively engaged in addressing personality disorders despite the limited psychological publications in this area. This is in part because in many countries in the region, clinical psychologists have utilized behavioral modification, an approach that has focused primarily on conditions such as mood disorders. Colombian psychologist Rubén Ardila has been a pioneer in this area, founding the journal *Avances en Psicología Clínica Latinoamericana* (Advances in Latin American Clinical Psychology, later Advances in Latin American Psychology) in 1982.

When addressing personality disorders, psychologists have had two primary sources. One source involved psychoanalysis, particularly the work of Otto Kernberg, an Austrian who emigrated to Chile in 1939 at age 11 and became a psychiatrist and psychoanalyst who then immigrated to the United States in 1961. More recently, it has been the work of Peter Fonagy, a Hungarian-born British psychoanalyst and clinical psychologist. Numerous authors across the region, including Erika Benítez Camacho and collaborators in Mexico, as well as María Josefina Escobar and collaborators in Chile, have adapted and further developed these psychoanalytic models. The other primary source has been marked by the strong influence of US psychological models such as that of Theodore Millon and, more recently, Jeffrey Young and Marsha Linehan. These models have been furthered by Latin American psychologists such as Edgar Rodríguez Vílchez in Peru and Jan Luiz Leonardi in Brazil.

The emphasis on personality disorders in Central and South America is growing, primarily as a result of the integrative movement in psychotherapy. For example, Ecuadorean psychologist Lucio Balarezo Chiriboga has developed an approach that places personality and personality disorders as the central foci in clinical work. Chilean psychologists Roberto Opazo Castro and Verónica Bagladi Letelier have developed a conceptual scheme on personality disorders based on their overarching, integrative approach. Argentine psychologist

Héctor Fernández-Álvarez has made several contributions to the study and treatment of personality disorders, such as the conceptualization of pathological affective dependence (Fernández-Álvarez, 2000). He has published, together with Spaniard psychologist Amparo Belloch Fuster, a book on the treatment of people experiencing personality disorders (Belloch Fuster & Fernández-Álvarez, 2010).

Most recently, Central and South American psychologists have pursued specific research topics such as the relationship between personality traits and personality disorders, and between anxiety disorders and personality disorders. Chilean psychologist Mariane Krause leads a research program on depression and personality disorders known as MIDAP, together with colleagues from Europe and the United States.

The *Asociación Psiquiátrica de América Latina* (Latin American Psychiatric Association) developed the *Guía Latinoamericana de Diagnóstico Psiquiátrico* (GLADP, Latin American Guide for Psychiatric Diagnosis) in 2004 and revised it in 2012 (GLADP-VR). The guide offers a person-centered integrative diagnostic model and includes personality disorders. It emphasizes the importance of a comprehensive evaluation that pays particular attention to ethnic, cultural, and social dimensions as well as contextual factors.

See Also

Personality in Culture
Culture and Personality
Tell-Me-A-Story (TEMAS)

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Personality Psychology from an Islamic Perspective

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The Topic's Intellectual and Social Context

Personality in Islam is viewed as a multidimensional entity comprised of body, mind, and spirit that interact with one another and constitute an individual human being. Just as the universe and celestial bodies possess a nature of their own, humans also possess their own nature and act in certain ways. In the Qur'an, the Muslim holy book, humans are encouraged to reflect on the signs within and outside themselves so they can know their real self and their relationship with their Creator. Islamic injunctions prescribe ways of constructing a personality akin to the commandments prescribed in the Qur'an. In Arabic, the term "personality" translates to *shakhsiya* and "psychology" to *ilm an-nafs*. *Shakhsiya* is used to describe individual traits/characteristics and was traditionally addressed in Islamic philosophy. Referring to certain verses of the Qur'an, Utz (2011) points out that "... humans are endowed with genetic codes that guide the development of the brain and elements of it are apparent from birth. Within a few months after birth, temperamental individuality is established. This character then influences a person's reactions to and interactions with the environment" (p. 98).

Early Muslim scholars wrote extensively about psychological concepts, but with the passage of time there was a constant decline in the interest and refinement of Islamic perspectives on personality (Haque, 2004). One of the major reasons for this neglect in the understanding and conceptualization of human nature from an Islamic perspective was the opinion of prominent Muslim scholars of the time that whatever is supposed to be known by Muslims was conveyed by Prophet Mohammad and to go beyond that knowledge may constitute innovation, which is prohibited in Islam. Although scholars acknowledged that this opinion could be true for religious matters, it led to a freezing of Muslim scholarship in many areas of knowledge (Sulaiman, 1990). Additionally, with the lapse of time and dominance of Western thinking, Muslims became followers of Western paradigms to the extent that Islamic views of personality and psychology became totally dormant in the Muslim world.

Major Dimensions of the Topic

From an Islamic perspective, the concept of personality is derived from human nature, which is considered dialectical. On the one hand, there are biological needs and instincts of a person and on the other hand there are spiritual ones. The psychological component of human nature is referred to as the *nafs* (self) that overlaps body and spirit and serves as a mediator between the two. When an individual is fixated mostly on biological needs, the *nafs* is referred to as *nafs al-ammarah.* Pure indulgence in biological needs becomes a barrier in the growth of psychological and spiritual domains of personality. The mind or psychological domain consists of three subdomains, intellect (*aql*), freewill (*iradah*), and intuition (*qalb*) and as they interact, an individual takes on the attributes of both body and spirit. The spirit can connect the individual with the Creator but an attachment to the biological may distance the person from Him. The polarity between biological and spiritual is mentioned in the Qur'an and that an overattachment to the biological and material can make humans become lower than animals. However, an attachment to the spiritual can elevate the position of humans higher than angels. This is because humans can exercise their freewill and acquire characteristics of a true believer. Islam emphasizes a balance in all three domains that leads to an Islamic personality. While the body, mind, and spirit constitute the total personality, the body perishes at death but the spirit transcends into the next world and faces consequences of its action in this physical life. So, in essence, it is the psychological domain that will eventually lead humans to good or evil in the hereafter. The entire notion of human personality is rooted in the Tawhidic paradigm, which is a belief in the Oneness of God (Allah) and practicing the Islamic faith.

Changes Over Time in the Topic and Its Treatment

The written accounts on the description of human nature and personality by Muslim scholars continued from 800 CE until 1100 CE. Many scholars contributed to the debates on philosophy of mind and soul, but in the interest of brevity, a few names deserve mention.

Al Kindi (d. 866) is the first known Muslim scholar who wrote about individual differences and personality issues including cognitive strategies to combat depression. Ibn Sina (d. 1037) discussed the mind–body relationship, sensation, perception and other related aspects of human personality. Al-Ghazali (d. 1111) wrote extensively about human nature and emphasized that all psychological phenomena originate with the self. He described the nature of human soul and causations of psychopathology. The theories formulated by these early scholars were curative in that they prescribed cognitive and spiritual ways of combating psychological disorders. After 1100 CE not much was written or recorded and a very meager amount of literature is available in the English language (Haque, 2004).

As a result of the colonization of Muslim countries and Western education, the importance of Western scholarship took roots in Muslim minds. This has not only detached them from their own intellectual legacy, but it has also made them propagate Western views of knowledge in all areas including the humanities and social sciences. Works that first started to come out of the modern Muslim world on human personality started in Egypt. Two major works published were *Personality and Its Measurement* (Meleika, Ismail, & Hana, 1959) and a translation of the textbook *Psychology of Personality* by Notcutt (1959). The first

text covered personality theories and assessment and descriptions of MMPI. The second served as a textbook for university students in the Arab world (Ahmed & Gielen, 1990). In the 1950s and 1960s, many books on psychoanalysis and behavioral psychology were translated for use in Egyptian universities. For example, Ghoneim translated Lazarus's popular textbook *Personality* (1981) and Abdel Khaleq (1981–1983) edited three volumes *of Research in Behavior and Personality*. There was also the development of personality questionnaires by Abdel-Khalek (1993). Shalaby (1991) also came up with a personality theory but until now there is no well-developed theory of personality from an Islamic perspective. An attempt by Haque and Yasien (2009) in their edited work *Psychology of Personality: Islamic Perspectives* came as a breath of fresh air! Psychometric tests were also developed in Egypt in two main areas: Eysenck's factors of neuroticism and extraversion and Cattell's conceptions of personality factors (Abdel-Khalek et al. 1986). Early in the 1950s some Arab psychologists like Haqqi (1979) developed personality tools but the 1960s and 1970s witnessed an overwhelming trend in translating US and British questionnaires. Some locally standardized personality tests started to show up in the 1980s (e.g. Souief, 1985). In the osther Arab/Muslim countries, the scenario was less than satisfactory as psychology as a discipline was introduced very late and indigenous views were not considered evidence-based; so Western theories continued to dominate.

Current Emphases in Work on the Topic in Research and Theory

Very little, if any, work on personality theories in the modern era from an Islamic perspective is offered by the Muslim world but there is significant activity in the area of standardized personality test developments. The establishment of the *Journal of Muslim Mental Health* has led to much research discussing theories and test development for Muslims. There are psychology journals in different parts of the Muslim world but they are based largely on Western paradigms. Most of the journals in the Muslim world are published in local languages making their usefulness for international audiences quite minimal. The International Islamic University of Malaysia (IIUM) boasts a unique psychology program based on the integration of science and religion. This initiative came out of the efforts to "Islamicize" knowledge (make knowledge compatible with the Qur'an) in an effort led by Faruqi (1990). In 1998, an entire issue of the *American Journal of Islamic Social Sciences* was devoted to Islamic perspectives in psychology. In more recent years, articles discussing Islamic views of personality and the need for promoting indigenous theories have appeared in some prominent journals (Haque & Keshavarzi, 2014; Keshavarzi & Haque, 2012; Murken & Shah, 2002; Haque, 1998).

Future Directions in Research, Theory, and Methodology

While efforts are underway to collate research, Muslim psychologists in different parts of the world need to advance Islamic personality theories, research, and methodology in detail and in a way that makes literature available to an international audience. A meta-analytic study may be a good start to chart a plan for the future. Psychologists interested in

Islamic perspectives have to decide the way forward, including working with Islamic theologians who are more familiar with the divine texts and their interpretations. While it is best to start from the Qur'an and Hadith, the two main theological sources, there are also other materials available from which to extrapolate (Haque, 2004). Islamic psychology needs to be promoted as a discipline housed in an accredited international university or institute (Haque, 2000). A scientist-practitioner approach is needed with grants and scholarships for motivated researchers and students. A special section on Islamic perspectives of personality could also be introduced in prominent international conferences and seminars. These steps are necessary and will only result in the positive development of a field that is of much import as a result of growing interest and need for multicultural psychology.

See Also

Religiosity
Religiosity and Spirituality

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Tiger Mother

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Origin and Definitions

"Tiger mothers," and by extension, "tiger parents," are characterized as highly demanding of their offspring in terms of academic performance, accomplishments in a narrow range of culturally valued extracurricular activities, and family obligation. This parenting style implies that there is little overt warmth or emotional support toward the offspring. Rather, it connotes an emphasis on using coercion and shaming to promote offspring's success and to preserve strict hierarchy in the parent-offspring relationship. The term "tiger mother" was popularized in the *Battle Hymn of the Tiger Mother* (Chua, 2011). In this book, author Amy Chua, a second-generation Asian American law professor, described her approach to tiger parenting her Asian and Jewish mixed-ethnic daughters. This kind of parenting has been considered to be rooted in the belief that offspring can rise to meet challenges and achieve the highest levels of academic success in response to the very high standards and expectations set forth and reinforced by harsh parenting behaviors. Tiger parents also have been depicted as de-emphasizing self-esteem, autonomy, and social skills in their offspring. These parenting behaviors have since been referred to colloquially as Chinese, or more broadly Asian, parenting. Tiger parenting has generated (inter)national attention and controversies because of the prescriptive nature of supposed "Asian" parenting practices and their intended contrast to mainstream Euro American parenting styles. Research into mainstream parenting styles and child socialization among Asian families has illuminated the socio-cultural patterns that are both consistent and inconsistent with tiger parenting, as well as its impact on offspring development.

Characteristics of Tiger Parenting and Mainstream Parenting Styles

Contemporary research suggests empirical support for the existence of tiger parenting as one style in a large sample of Chinese Americans. Based on profile analyses, tiger parenting indeed shows strong monitoring, control, hostility, punitive behaviors, and shaming,

and lower warmth, especially in comparison to a "supportive" parenting style identified in the same sample (Kim, Wang, Orozco-Lapray, Shen, & Murtuza, 2013). At the same time, tiger parents show greater warmth, reasoning, democracy, and lesser hostility and punity than those characterized as "harsh" parents. Contrary to Chua's depiction of tiger parenting as the predominant parenting style in Asian American families, less than 30% of the adolescents in the sample describe their parents as tiger parents.

Decades of mainstream developmental psychological research has come to characterize four major parenting styles. According to Baumrind's classic typology (1966, 2012), *authoritarian* style refers to parenting practices that shape and control offspring's behavior against a set of rigid standards, in which obedience is highly valued, and free will and autonomy are restricted. Authoritarian parenting differs from *authoritative* style: the former is generally marked by punitive practices and hostility, whereas the latter is defined by parenting practices to guide offspring's behaviors and development with reason and issue-oriented discipline. Both autonomy and conformity are valued, but the set of standards is rather flexible among authoritative parents. *Permissive* parenting style is characterized as nonpunitive and accepting, with few demands for obedience. Compared to either authoritative or authoritarian parenting, permissive parents do not hold their offspring to a well-established set of standards; the offspring often are left to their own devices in regulating their behavior. Subsequent research further distinguishes two subtypes of permissive parenting. Although similar in the low level of demandingness and expectations of their offspring, indulgent parents are attentive and responsive to offspring's emotional needs, whereas neglecting parents are not. As illuminated by this foundational body of research on parenting, a balance in discipline and promotion of offspring's individuality and self-regulation is critical to the optimal adjustment among Euro American offspring.

In contrast to these parenting styles typical in mainstream American cultures, tiger parenting is marked by greater engagement in harsh discipline (both in terms of corporal punishments and verbal hostility), shaming via explicit social comparisons among offspring and peer achievement, placing heavier emphasis on academic performance over social, physical, and autonomy development, and highlighting interdependence within the family. Beyond simply describing parenting prototypes such as authoritative and tiger parenting, psychological research also highlights the importance of contextualizing parent-offspring interactions within the meaning and goals of parenting practices across ethnocultural groups.

Effects of Parenting on Offspring Outcomes: Multicultural Considerations in the Goals of Socialization

Tiger parenting has been invoked in the discussion of Asian Americans as "model minorities," who overcome social and economic adversity with uncomplaining hard work (Lui & Rollock, 2013). Chua brought new prominence to the concept by also identifying a generational decline in Asian Americans' accomplishments, which she attributed to Asians' abandonment of tiger parenting practices as they adopt American mainstream norms. Empirical studies have shed light on the validity of this claim from two perspectives. First, recent immigrant Chinese mothers with young children are more likely to adhere to tiger parenting behaviors. As they spend more time in the United States, they report being

increasingly flexible in their parenting behaviors, and more mindful about fostering their children's independence, self-esteem, and emotional development (although not necessarily devaluing interdependence). Second, the prevalence of tiger parenting has been found to vary across developmental epochs. While children are more likely to describe their parents as tiger parents than parents themselves, by late adolescence and emerging adulthood, the percentage of offspring reporting having tiger parents drops from 30% to under 20% (Kim, Wang, Shen, & Hou, 2015). These findings echo the acculturation-gap distress literature on parent-offspring discrepancies in beliefs about parenting practices, acculturation behaviors, and cultural values, which may in turn lead to greater acculturation-based conflicts unique to immigrant families (Lui, 2015).

Perhaps the most important and controversial assertion by Chua is that tiger parenting produces direct, positive benefits in terms of superior academic achievement among young Asian American students relative to their non-Asian peers. Systematic studies of the developmental consequences of tiger parenting have yielded paradoxical results across academic and psychosocial outcomes (e.g. Cheah, Leung, & Zhou, 2013; Hsin & Xie, 2014). Whereas tiger parenting has shown effects similar to supportive parenting in promoting offspring's academic achievements, offspring with tiger parents report less family obligation, and greater feelings of academic pressure, alienation from parents, and higher levels of depressive symptoms. Offspring of tiger parenting seem to have better psychosocial outcomes than those with harsh parents, in terms of lower depressive symptoms and greater sense of alienation from and obligations toward parents. In contrast, authoritative parenting styles seem to encourage academic achievement among middle-class Euro American offspring, but has been shown ineffective by itself in influencing academic development of Asian (and African) American offspring (e.g. Fu & Markus, 2014).

When compared against the negative consequences of harsh and authoritarian parenting and favorable consequences of supportive and authoritative parenting among Euro Americans, tiger parenting among Asian Americans takes on differential meanings and impact when contextualized in terms of cultural differences in the self and goals of socialization (Chao, 1994; Darling & Steinberg, 1993). For example, research disentangling the components of tiger parenting has shown that high levels of parental monitoring do not predict depressive symptomatology and academic motivation among Asian (Hmong) Americans. Rather, low levels of parental monitoring in the context of high levels of acculturation-based intergenerational conflict predict more depressive symptoms and lower self-esteem (Supple & Cavanaugh, 2013).

Remaining Research Questions

Further understanding of how tiger parenting influences offspring development depends on scientific examinations of its adaptive value in an Asian context. The assertions of the characteristics and influences of tiger parenting lack a nuanced perspective within diverse groups of Asian Americans. There are at least 23 countries/regions of origin that are represented among individuals who are classified as "Asian Americans." In addition, how parenting styles and practices correlate with parents' acculturation to the mainstream and/or enculturation to their ethnic heritage cultures remains understudied. There has not been a solid empirical basis to the "generational decline" discussed in the *Battle Hymn of the Tiger*

Mother. This observation by Chua may be attributable to differential goals of socialization and emphases on offspring developmental outcomes, or a function of socioeconomic status. Hence, the psychological literature can benefit from better understanding of the differential influences of acculturation, socioeconomic status, and ethnocultural membership on tiger parenting.

Person-centered approaches such as profile analysis have been helpful in mapping out the typology of parenting in Asian American ethnocultural groups. Qualitative studies using interviews and focus groups also have shown their merits of more nuanced understanding of Asian American parents and offspring's perception and experiences with tiger parenting and other styles. The field has advanced from etic approaches of comparing Asian American samples against Euro American mainstream samples to emic approaches that emphasize group-specific experiences. Moving beyond the study on the typology of parenting behaviors, including those of tiger mothers, research should unpack the unique influences of the "active ingredients" of parenting practices within these configurations. For example, the literature is unclear as to whether psychological control (e.g. shaming, reinforcement of high standards for excellence) results in high academic achievement in Asian American offspring. Additionally, little is known about the emotional contexts (e.g. parents' expression of warmth or offspring's emotional connection toward the parents) in affecting the effectiveness of parent behavior.

Furthermore, there is a lack of knowledge regarding the appropriateness of tiger parenting across developmental epochs. Studies could benefit from cross-sectional designs across developmental cohorts to examine prevalence variations in tiger parenting and this parenting style's impact on offspring's psychosocial functioning. Research that uses longitudinal designs also can delineate the change trajectories of parenting practices and their associations with offspring's developmental outcomes. Finally, the current empirical investigations have focused mainly on the attitudes and behavioral practices as parental characteristics; fewer have examined how offspring's intra- and interpersonal characteristics influence parents' behaviors. Research should aim to bridge the connection between individual differences in parenting and offspring behaviors to better ascertain the complex interplay among these factors.

See Also

Biculturalism
Individual Differences in Acculturation
Personality Psychology in China

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Native Hawaiian Personality

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Theoretical Framework and Conceptualization

Before conceptualizing personality or sense of self among Native Hawaiians, it is important to clearly define Native Hawaiians in the context of history and place. Native Hawaiians (*Kānaka Maoli*, the "true" or "real people") refers to the indigenous people of the Hawaiian Islands. Native Hawaiians established their own monarchy, government, constitution, and had international policies and treaties establishing Hawai'i as a nation. The Kingdom of Hawai'i had a history of encouraging and accommodating immigration and intermarriage that informs Native Hawaiians' definitions of identity and personality as well as what "being" and "acting" Hawaiian means.

In 1893, a group of American businessmen, assisted by the US Navy, overthrew the Hawaiian government. An overwhelming majority of Native Hawaiians (an estimated 38,000 of 40,000) protested the loss of their sovereign nation. Colonization of their nation included suppression of traditional social and spiritual practices, language use, and imposition of Western concepts of blood-quantum and nuclear family structures that continue to affect Native Hawaiians' sense of identity and expression of "traits" as they are understood in Western psychology. In *Aloha Betrayed*, Noenoe K. Silva provides a complex overview of the effects of colonization on Native Hawaiian identity. The effects of this cultural trauma as well as the centrality of family support to individual differences in resiliency have been the focus of the seminal *Kauai Longitudinal Study*.

Native Hawaiian identity is an ancestry rather than residency. The legacy of Western racial constructions and cultural appropriation, as well as the complex multicultural and multiethnic identities of contemporary Hawaii state residents have meant that identifying "who" is a Native Hawaiian and what makes one "Hawaiian" are consistently negotiated both in the islands and among Native Hawaiians who live elsewhere (Ledward, 2007).

In the 1970s, a cultural renaissance began with two co-occurring events: the protection and rallying of the island of *Kaho'olawe* from bombing by US military and the voyage of the

Hokuleʻa providing evidence of the indigenous Polynesians' skills in navigating the Pacific Ocean. Concomitantly, Native Hawaiian traditions, customs, and practices including the language and hula were and are being revitalized and incorporated into the daily lives of Hawaiians and residents of the Hawaiian Islands. Movements for sovereignty and indigenous rights are occurring also to provide access to the *ʻaina* for subsistence, spiritual and religious purposes, preservation, and conservation.

Geography, Indigenous Psychologies, and Personality

Indigenous psychology involves understanding people through ancestral, social, political and symbolic contexts (Kovach, 2009). Indigenous epistemology is embedded in time, place, and relationships and the *expression of self* is conveyed through genealogy, land, and history (McNeill, McCubbin, & Sevedge, 2017).

The emerging science of *geographical psychology* (Rentfrow, 2014) and the lens of indigenous psychologies attend to the particular historical and social forces from which self and personality arise. These provide a framework for understanding how place and environment create personality systems and relational contexts. This is particularly apt for the understanding of Native Hawaiian cultural influence on the "personality" of the state of Hawaii: "It is axiomatic that the ideals and morals of tolerance, acceptance, diversity and multiculturalism infusing Hawaii society exist because of the *kānaka maoli* or Native Hawaiians" (Andrade & Bell, 2011, p. 1). Rentfrow asserts that these "social founder" effects create social norms, which in turn affect the relative tolerance for and expression of personality traits in a society or region. In Hawaii those norms and social practices are expressed at the societal (see Vandello & Cohen's study of social indicators of collectivism in the 50 United States) and individual level of trait scores amongst Polynesian samples, including Native Hawaiians (Allen, Conklin, & Kane, 2017).

Understanding indigenous epistemology is also important in conceptualizing Native Hawaiian personality especially the relationship with land and sense of place in shaping one's identity. Westerners' conceptualization of land is ownership, property and one's relationship to the land is mastery or dominance over the natural environment. Native Hawaiians' worldview of land is embedded in the value of *lōkahi* meaning unity and balance. One's sense of self and well-being is embedded in harmony with the *ʻaina* (land), *kanaka* (humankind), and *ke akua* (gods). Therefore, to understand Native Hawaiian personality, first one must understand that the concept of self is grounded in the *ʻaina* and social relationships.

This self is defined through one's ecological context (McGregor, Morelli, Matsuoka, & Minerbi, 2003) encompassing family (*ʻohana;* extended family and kin), ancestors, gods, and spirits (*Ke Akua* meaning God and *aumakua* referring to family guardian gods), and natural environment (*ʻaina*). Community plays a central role in defining identity and personality as community cultivates a sense of place where beliefs, values, and cultural practices can be passed on across generations (McCubbin, McCubbin, Zhang, Kehl, & Strom, 2013). This relational worldview of self within an ecological context provides a framework to understanding Native Hawaiian identity and personality.

Native Hawaiian rituals and ceremonies also demonstrate this self-in-relation framework. For example, an *ʻoli* (chant) as an introduction provides information about the context of self-in-relation including one's ancestry and connection to the land. Another example is the blessing of one's home with a Hawaiian name given of the placement of self-in-relation to ʻ*aina* (land), ʻ*ohana* (family), and *aumakua* (ancestors) and time (past and future) (McNeill, et al., 2017). Introductions, naming ceremonies, and sharing of stories are all expressions of identity and self-in-relation through indigenous practices.

Historical Indigenous Self vs. Trait Theory

Any assertions about the content and process of a Native Hawaiian self must be informed by an understanding of the role of cultural trauma in modern Native Hawaiians' conceptualizations of that self. Typically, Western conceptualizations of "self" conceive it as bounded, internalized, and unique (see Culture and Personality). Individual genetic predispositions are offered as evidence of the stability of traits and behavioral tendencies. This a-historical approach to personality cannot be applied to the Native Hawaiian.

A Native Hawaiian self cannot be a singular unit of identity, nor does "relationship" mean the traditional Western idea of human-to-human kinships or friendships. Therefore, one must look to this complex system of unity, harmony, and balance to explain both maintenance and disruption of identity and personality. Such a contextualization necessitates a firm understanding of how cultural and historical trauma have affected the formation and expression of personality: colonization by Westernized practices has affected the ability to maintain functional systems of self, family, and community described above. These practices could impose a chronic state of grief and bereavement on *Kānaka Maoli*, and this inchoate sense of loss often finds its expression in mood dysregulation, ruptures in self-esteem, and conflict with others.

To restore harmony, *lōkahi,* one must address the loss of key features of Native Hawaiian spirituality that reinforced ancestors-nature-human interconnections. Protestant monotheism and abnegation enforced by missionaries occluded important ways in which links to the land (ʻ*aina*), the practice of dance (*hula*), ancestral identification (*aumakua*), and nature-stewardship converged to maintain order (*pono*) within the person and larger community. These disruptions and dislocations interfered with culturally adapted strategies of coping with existential threats via rituals and practices that promoted spiritual balance, resilience, and community cohesion. In the absence of this collective form of psychological defense and "anxiety buffer" the individual will resort to negative strategies for coping (aggression, substance abuse, etc.) that are conceptualized in the dominant culture as individual failings or evidence of mental disorder.

There has been a call to re-conceptualize some Native Hawaiians' ambivalence about their identity from mere internalized oppression to a necessary survival strategy in the face of social and political institutions that have consistently impeded the expression of a healthy Hawaiian self (Kanuha, 2005).

One must be cautious when interpreting an indigenous identity through a Western framework of personality as these theories can be contaminated with a colonial version of history and may perpetuate stereotypes of native people as having marginalized identities. This does not accurately portray the perseverance and vitality of the Hawaiian culture and

identity that is perpetuated through the land and self-in-relation indigenous practices. The past two decades have witnessed a burgeoning interest in the role of Native Hawaiian culture and identity as an important factor in well-being. Such findings have been canalized into a call for a focus on a "healthy Hawaiian identity" rather than the usual focus on deficits and pathologies brought about by cultural trauma and socioeconomic disadvantages. This identity locates itself both in positive health practices and as well as a link to the cultural practices (language, dance, navigation) and values of one's ancestors (McMullin, 2005. The role of culture in the process of resilience is essential to understanding both individual differences in and personality structures common among the Hawaiian people.

Research by and about Native Hawaiians indicates the essential role of relational self and well-being and its impact on physical and mental health. Specifically, one's *'ohana,* culture, values and spirituality play a significant role in mean-making and the construction and maintenance of self and personality (McCubbin & Moniz, 2015). If Native Hawaiian personality is conceived as interdependent, respectful, and harmony-seeking, these "traits" must be understood not as singular human qualities but as deeply cultivated expressions of values, connections with the land, and interrelationships that sustain the health and well-being of a people.

Future Directions for Research and Theory

When Native Hawaiians are correctly identified (cf., disaggregated) in research it is usually to test and report on disparities (e.g. higher rates of perinatal depression, depression, poorer educational outcomes). There is a paucity of research on individual differences (cf., traits), or how the place-based and relational self embedded in the culture might affect the expression of or relative frequency of such traits.

This focus does identify important needs of the community, but it is also important to identify and promote the emerging "educational healing" and culture-as-cure approaches that locate mental and physical health in positive ethnic identity, and expression of native values are becoming more evident in approaches to the assessment of personality and the identification of an ecologically embedded self.

See Also

Personality and Geography
Resilience Theory of, Not Just the Trait Dimension

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Personality and Aging

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Once thought of as stable, personality development in adulthood is increasingly being recognized as reflecting processes of change over time. Researchers are beginning to gain a new understanding of how personality evolves throughout life in the context of the biological, cognitive, and social changes associated with aging, which both affect, and are affected by, personality.

It is important when interpreting the results of studies on aging and personality to point out that a number of investigations use cross-sectional methodology according to which cohort differences may account for apparent age differences. Conversely, longitudinal studies reflect patterns of age changes that may also reflect selective survival of, for example, individuals higher in emotional stability. Therefore, sequential studies that account for both cohort and survivor effects are preferred, though data from these studies are not always available. Where possible, we draw from longitudinal studies which, though biased by selective survivor and time of measurement effects, are preferred over cross-sectional studies.

The most thoroughly studied changes in personality traits are based on the components of the Five Factor Model, namely conscientiousness, agreeableness, emotional stability (neuroticism), extraversion, and openness. These personality traits show normative patterns across age groups and over time reflecting the plasticity principle that changes can and do occur in personality traits throughout the adult years. Additionally, in accordance with the maturation principle of personality development, conscientiousness, agreeableness, and emotional stability tend to increase from childhood into late midlife. By contrast, extraversion and openness increase through young adulthood and then show little change through late midlife (Roberts, Walton, & Viechtbauer, 2006). Normative mean-level personality trait change in older adulthood is studied less often. However, what evidence does exist suggests declines in openness and extroversion, continued increases in agreeableness, little change in emotional stability, and declines in conscientiousness (Lucas & Donnellan, 2011).

Paralleling these normative mean-level changes, the cumulative continuity principle of personality trait development proposes that rank-order stability increases in degree through late midlife. Effectively, this means that while individual scores may be increasing on a given trait, those highest in this trait remain highest and those lowest remain lowest (Roberts & DelVecchio, 2000). However, these patterns do not continue into late life. As individuals enter late life, rank-order stability begins to diminish (Lucas & Donnellan, 2011).

As with the majority of developmental processes, normative patterns of trait development are not universal, however. Instead, individual differences in patterns of stability and change prevail throughout the lifespan and variability in patterns of stability and change in individuals may itself be normative. A number of mechanisms support personality trait consistency including genetics, consistent environments, and a variety of person-environment transactions. For example, people often select themselves into environments consistent with their existing personality thus facilitating stability in, or continued development of, personality traits along the same trajectory. That is, a highly extraverted individual may choose a job that involves a good deal of social interaction that will itself maintain or enhance extraversion in that individual (Roberts & Wood, 2006).

One of the defining mechanisms of personality trait maturation in adulthood is the social investment principle which states that individuals who commit to adult social roles that are in keeping with the social clock expectations of their culture tend to follow normative patterns of trait maturation. When an individual acquires and commits to a role, the expectations associated with that role become important to the individual who then begins to act in accordance with these expectations. For example, on entering the corporate 9–5 world, new employees are expected to show up on time wearing clean clothes and behaving in responsible, reliable ways – all core aspects of conscientiousness. As the individual identifies with a new role, these expectations become key parts of personality and are thus reflected in more mature trait ratings. Critical in early and middle adulthood, social investment also helps understand trait maturation in older adult samples, particularly for maintaining and growing conscientiousness. Older adults who are highly invested in social roles continue to increase in conscientiousness, but those who are highly disengaged decline in conscientiousness over time (Lodi-Smith & Roberts, 2012).

The fact that social engagement is a buffer against otherwise normative declines in conscientiousness is particularly compelling in light of the impact of personality traits on physical, cognitive, and psychological health throughout the life span. Personality traits, particularly conscientiousness and emotional stability, are key predictors of healthy aging. For example, both conscientiousness and emotional stability predict longevity, health, and later onset of Alzheimer's. Personality may also be critical for cognitive fitness in late life (Luchetti et al., 2016).

This then raises the obvious question of can an individual change his or her personality? Certainly, evidence suggests that by entering into socially engaging roles, an individual can foster mature personality trait development. There is also some emerging evidence that if people want to change and lay out a clear plan for their personality to change, then their personality will change. Specifically, individuals must (a) want the change, (b) believe the change can happen, and (c) maintain the behaviors associated with the change. Work in this area is new, however, and more research is needed to understand the patterns and mechanisms of directed trait change (Hennecke, Bleidorn, & Denissen, & Wood, 2014).

Although the personality trait model charts changes and stability over time in the components that make up an individual's typical ways of responding to experiences, it does not speak to the issue of self-awareness and how this may change over time. Such self-awareness can include knowledge of the individual's personal attributes including schemas for one's physical appearance, cognitive abilities, social roles, and personality, among other self-ascribed qualities. Relevant to our discussion is the awareness individuals have of their own personality traits. Individuals may be highly introverted, and recognize themselves as such, or they may be highly introverted but believe that they prefer the stimulation of having other people around them.

The identity process model (Whitbourne, 1986; Whitbourne, Sneed, & Skultety, 2002) provides a framework for understanding how individuals both shape and react to changes in these self-schemas over the adult years. Through identity assimilation, individuals interpret their experiences in such a way as to make these interpretations consistent with their existing sense of self. Returning to the case of conscientiousness, the person who is actually low on conscientiousness but has an identity as a highly conscientious person would, through identity assimilation, interpret the experience of being late as reflecting external factors such as traffic or an alarm failing to go off due to a phone's low battery.

The converse process, identity accommodation, occurs when individuals change their self-schemas in response to their experiences. Over repeated instances of being late, as the chronically late "conscientious" types are confronted by friends or supervisors, they may start to bring their identities in line with their experiences. As they enter this process of adaptation, they may undergo a period of self-scrutiny in which they reflect back on times in their life when they blamed others for their lateness or refused to acknowledge it. Eventually, as they start to form a more realistic sense of this aspect of their personality, they will gain insight into their actual level of conscientiousness and their identity will reflect this alteration.

Ideally, individuals maintain a balance between identity assimilation and identity accommodation, but at any one time, one of those processes may predominate. Individuals who now accept the fact that they are not as conscientious as they believed they were are engaging in identity balance and, presumably, are able to take a more realistic view of situations in which they either are, or are not, behaving in a manner consistent with a conscientious personality.

While self-awareness changes through this process, it is likely that individuals who gain insight into their personalities also change in the way they respond to questionnaires measuring Five Factor traits. Once a "7" (the highest possible score) on a conscientiousness item, they may now choose a "4" or "5" instead. Studied over time, then, their actual conscientiousness may seem to change, when in fact what changed was their self-awareness of their personalities. However, their scores may remain unchanged if they use the self-awareness they have gained as a motivation for "change," and they in fact start to appear on time for their obligations.

Changes in identity also expand to a larger range of schema than personality traits. As individuals age, they are increasingly faced with the prospect of looking and behaving in ways that classify them as "old." Given the ageism prevalent in Western society, such realization may come at a price. In fact, however, older adults are able to maintain their self-esteem through a combination of identity assimilation (continuing to deny the reality of age-related changes) and identity accommodation (recognizing that they are aging)

so that they eventually are able to maintain their self-esteem (accepting the fact that they are aging but not feeling threatened) (Sneed & Whitbourne, 2005).

Identity development also occurs in the context of the larger process of ego development, an approach that emphasizes the growth over the individual's life of adaptive abilities within personality. The best-known proponent of the theory of ego development is Erik Erikson, who described eight stages in the growth of the ego, or conscious component of the psyche. Representing a biopsychosocial process, Erikson believed that the ego grows across eight periods in which there is a heightened vulnerability to a combination of physical changes, cognitive and emotional capacity, and social pressures. The phase of identity development peaks in adolescence when individuals are experiencing the process of physical maturation, development of the capacity for abstract thought, and the expectation that they will make commitments in the areas of occupation and ideology.

Once resolved, identity remains a continuing area of development throughout life even as subsequent issues start to emerge, such as the need to find a close romantic partner (intimacy), establish a sense of legacy (generativity), and come to accept the reality and constraints of life and mortality (ego integrity). Although Erikson did not believe that psychosocial issues such as identity are limited to one period of life (cf. Whitbourne, Sneed, & Sayer, 2009), he did maintain that there was a period when individuals are most likely to confront these issues. Similarly, as Erikson charted the matrix of ages for which most psychosocial issues are likely to be confronted, it is also possible for individuals to confront issues in an "off-diagonal" manner. The young infant coping with loss of a parent may be dealing in some way with ego integrity issues; conversely, the older adult who is the victim of elder abuse may be grappling with the "infancy" issue of trust.

Taking the notion that identity development remains a central theme in life one step further, a similar pattern can be seen in the metacognitive process of self-concept clarity. Specifically concerned with an evaluation of the consistency and certainty of the individual's sense of identity over time, cross-sectional evidence suggests that self-concept clarity is most robust in midlife adults relative to young and older adults. In the literature to date, lower levels of self-concept clarity in older adults seem to be contingent on higher levels of health-related role limitations. Indeed, role identity and role transitions appear to be a central part of self-concept clarity. The shifting demographic, physical, and cognitive lives of older adults may present unique challenges to identity-defining roles and thus to overall self-concept clarity. As self-concept clarity is linked to a host of psychological health outcomes, the maintenance and promotion of self-concept clarity in late life is an important concern for future research (Lodi-Smith et al., in press).

People's narrative identity, captured by individual differences in the ways in which individuals tell the general story of their lives and the central experiences of that story, also shifts in older adulthood. The autobiographical memories that define this aspect of personality are subject to positivity bias and heavily grounded in reminiscence. That is, within normative aging trends, older adults tend to remember events from ages 10 to 30, their memories of these events skew toward a positive affective interpretation, and they use memory not only in a way to define personal identity but also to relate to others and to provide guidance to future generations. The more individuals rely on identity assimilation, the more that positivity bias will appear as they shape their memories in terms of their desired self-schemas (Adler et al., 2016).

However, research on how autobiographical memory integrates with narrative identity in late life is still emerging. Central aims for future work in this area will require a look at how older adults differ in their use of the key motivation, affective, and integrative themes of narrative identity as well as how structural elements of narrative identity such as coherence and complexity function in late life relative to in earlier periods of the lifespan. Further, future research will need to develop the extent to which individual differences in narrative processing predict physical, cognitive, and psychological health in late life above and beyond the effects of other personal and situational indicators of aging well. Finally, little is known about how narrative identity is affected by cognitive changes in later life. Future work will help to examine how, as memory for core autobiographical experiences declines, changes occur in narrative identity.

See Also

Big Five
Defense Mechanisms
Erikson Psychosocial Development Stages
Personality Stability Over Time
Self-Concept, Expressions of the

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Personality and Longevity

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Introduction

Personality, our relatively stable individual patterns of behavior, motivation, and thought, is linked to health through multiple pathways. These include personality-related predispositions to engage in (or refrain from) certain health-relevant behaviors (Bogg & Roberts, 2004); personality's influence on social relations (Pierce, Lakey, Sarason, & Sarason, 1987); and personality's association with neuro-immunological activity such as through the hypothalamic-pituitary-adrenal (HPA) axis (Segerstrom, 2000). Although there are many labels that may be applied to personality characteristics, researchers have gravitated toward a theoretical model that defines five broad personality traits that seem to capture the primary ways in which individuals vary (Goldberg, 1993). Each of these traits is comprised of additional, more specific sub-traits or "facets," and the five broad dimensions ("Big Five") are typically labeled: conscientiousness, openness to experience, extraversion, neuroticism, and agreeableness. Since the 1990s, health researchers have been using this Five Factor Model for many (though not all) examinations of personality and health, including longevity.

Because longevity reflects the amalgamation of so many factors, it is perhaps surprising that an abstract thing like personality could predict it in any reliable way. Yet, this is exactly the case – through the pathways already described for linking personality to various aspects of health. The following sections will summarize what we know about how each of the Big Five personality factors relates to longevity.

Conscientiousness

Conscientiousness, a broad trait that includes things like diligence, reliability, and low-impulsivity, is the most clearly protective of the Big Five. A meta-analysis of 20 studies (Kern & Friedman, 2008) showed only positive associations between conscientiousness

and longevity, and the size of the effect appears comparable to the well-established SES-to-mortality association (Roberts, Kuncel, Shiner, Caspi, & Goldberg, 2007).

Conscientiousness is associated with health-relevant behaviors such as diet, exercise, smoking, and alcohol consumption (Bogg & Roberts, 2004) but its link to mortality risk is only partly explained by healthy behaviors (Martin, Friedman, & Schwartz, 2007). Biological pathways, although less clearly understood, also seem relevant – such as the observed relation between a variant gene sequence, lower conscientiousness, and abnormal hypothalamic-pituitary-adrenal (HPA) axis responses (Wand, McCaul, Yang, Reynolds, Gotjen, Lee, & Ali, 2002), and links between low conscientiousness and interleukin-6, an inflammatory marker that predicts mortality (Gruenewald, Seeman, Ryff, Karlamangla, & Singer, 2006).

Some studies, such as this one on interleukin-6, control for health behaviors, suggesting that the planful and organized nature of a conscientious individual may result in better preparedness and therefore less perceived stress during challenging situations. This idea is supported by the finding that conscientious students reported less pressure and fewer hassles over three years (Vollrath, 2000) and meta-analytic findings that people higher on conscientiousness are less likely to cope in negative ways (such as denial or substance use) and more likely to engage in problem-focused coping (Connor-Smith & Flachsbart, 2007).

Openness to Experience

The trait labeled "openness to experience" includes elements such as creativity, flexibility, imagination, and curiosity. Although not as extensively investigated as conscientiousness, openness has been linked to decreased all-cause mortality risk (Iwasa, Masui, Gondo, Inagaki, Kawaai, & Suzuki, 2008) and in particular the facets of cognitive and behavioral flexibility, interest in aesthetics, and curiosity seem relevant. The mechanisms linking openness to longevity are somewhat murky. Reactions to stressors may again be relevant, as people higher in openness have been found to be less reactive when encountering stressors in a laboratory situation (Williams, Rau, Cribbet, & Gunn, 2009). Better maintenance of cognitive functioning may also be relevant (Duberstein, Chapman, Tindle et al., 2011), perhaps enabling individuals to appropriately manage, or even to better avoid, health problems.

Extraversion

As a broad trait, extraversion includes the aspects of sociability, activity, warmth, and generally positive mood. The association between this trait and longevity is mostly, although not entirely, consistent. General extraversion (Iwasa, et al., 2008) and the activity facet (Terracciano, Lockenhoff, Zonderman, Ferrucci, & Costa, 2008) predict decreased all-cause mortality risk, but not all studies find this association (e.g. Weiss, & Costa, 2005).

Dispositional optimism, although not one of the Big Five, deserves mention here as it reflects the tendency to have positive expectations for the future; most researchers would consider it, in Big Five terms, to reflect high extraversion and low neuroticism (discussed in the

next section). Optimism is not always associated with improved longevity (Martin et al., 2002), perhaps because optimists experience greater frustration when things do not go as planned, or remain in stressful situations longer because they expect them to eventually turn out well (Segerstrom, 2006). However, the bulk of the evidence suggests that optimism is protective most of the time and the most likely mechanism explaining this association is adaptive coping (Solberg Nes & Segerstrom, 2006).

Neuroticism

Neuroticism, in the Big Five sense, embodies tendencies toward unstable and negative emotions, including anxiety, hostility, depression, and self-consciousness. Not only are these qualities often linked to poorer health; some long-term studies of neuroticism (e.g. Terracciano et al., 2008) and a meta-analysis of emotional instability (Roberts et al., 2007) show links to increased mortality risk. Other studies, however, fail to confirm this association (e.g. Iwasa et al., 2008) and some find neuroticism to sometimes be protective (e.g. Weiss & Costa, 2005). These wide-ranging results have led to the hypothesis that there may be two forms of neuroticism (Friedman, 2000) – an adaptive form that directs individuals toward health-protective behaviors and an unhealthy type that increases perceived stress and encourages ineffective or even harmful coping strategies.

Agreeableness

The final Big Five trait, agreeableness, includes characteristics such as compassion, trust, altruism, and being easy to get along with. The data do not suggest a strong association between agreeableness and longevity, although there is some evidence of a protective effect (Weiss & Costa, 2005). Other studies find little evidence of an effect (e.g. Iwasa et al., 2008) and it has also been associated with increased mortality risk (Chapman, Fiscella, Kawachi, & Duberstein, 2010). The data on one aspect of (low) agreeableness – interpersonal antagonism – does seem important, especially when combined with anger to yield hostility.

A great deal of research has focused on hostility, and it is generally linked to poorer health outcomes and decreased longevity (e.g. Iribarren, Jacobs, Kiefe et al., 2005) although again, there are some studies that fail to show the link to mortality. When hostility is viewed in terms of its components, most agree that the combination of anger, antagonism, and cynicism is a risk factor, particularly for cardiovascular death (Smith, Glazer, Ruiz, & Gallo, 2004).

Conclusion

In the past four decades, evidence that personality traits are important contributors to longevity has mounted. For some of the Big Five traits (e.g. conscientiousness), the data are fairly clear; but for other traits the evidence is more murky. Ongoing research is focused on identifying the components of broad traits that are more important and the ways in which they interact with other factors to produce unique outcomes across the life span.

See Also

Agreeableness
Conscientiousness
Extraversion
Eysenck Giant 3
Neuroticism
Openness
Personality and Health

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Personality and Health

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With roots in philosophy and fueled by growing biological sophistication, the idea that the mind or "psyche" can affect the body or "soma" developed into the formally recognized subdiscipline of health psychology in 1978. From Hippocrates forward, the idea of homeostasis – whether of bodily humors or physiological arousal – has been recognized as important, with deviations linked to poor health and disease. Study of the ways in which personality (relatively consistent individual differences in patterns of behaviors, attitudes, and motivations; McCrae & John, 1992) is related to health and illness is one major aim of health psychology.

Prominent among modern typologies relating personality to health was the Type A behavior pattern. In the 1950s, cardiologists identified work-driven, impatient, tense individuals whose characteristic styles of interacting with the world put stress on their nervous systems and increased their risk of cardiovascular disease (Chesney & Rosenman, 1985). Those without these characteristics were labeled "Type B" and others later added additional categories.

Over time, typological conceptualizations diminished in popularity and a view of traits as existing on a continuum with many interacting elements became widely accepted. Hans Eysenck (1967) was one of the first to link personality traits to underlying biological mechanisms such as baseline cortical arousal, proposing a three-factor model of personality including introversion/extroversion, neuroticism, and psychoticism; this was an important step for the field. Another key breakthrough was the identification of the "disease-prone personality." In an effort to more completely capture what was known about personality-health relationships, Friedman and Booth-Kewley (1987) conducted a meta-analysis of the associations between emotional components of personality and various chronic diseases. Rather than disease-specific links, however, they identified the more general "disease-prone personality" that places individuals at risk for a variety of negative health outcomes; this discovery highlighted the importance of measuring multiple personality factors, health outcomes, and other relevant variables in studies of personality and health and reminded researchers that simple associations are seldom very useful.

Most contemporary personality psychologists now recognize the Five Factor Model (FFM), a lexically based and universally identifiable set of five higher-order dimensions – extraversion, neuroticism, agreeableness, conscientiousness, and openness – each including multiple lower-order facets (McCrae & John, 1992; John, Naumann, & Soto, 2008). The identified relationships between these constructs and physical health vary, and not all factors have been equally studied. Also, the ways in which these personality factors and health outcomes are related are complex, including behavioral pathways, habitual reactions to stressors, and genetic predispositions, as well as other health-relevant elements like symptom perceptions and reporting. Because multiple pathways function at the same time, health is somewhat subjective, and assessment is challenging, the ideal approach is to study personality–health links from a lifespan perspective. The extant literature contains many cross-sectional and some longitudinal studies and we now examination the relationships, demonstrated in both types of studies, between FFM traits and health.

Of the Big Five, openness to experience (which includes elements of imagination, creativity, intellect, and wide-ranging interests; Caspi, Roberts, & Shiner, 2005) has probably received the least research attention from health psychologists. Studies have tended to focus on one or more openness facets, and findings have been inconsistent. For example, individuals high on "action," possibly because they readily engage in new experiences, tend to have more frequent experiences of positive emotion (Carrillo, Rojo, Sánchez-Bernardos, & Avia, 2001); and many behaviors and positive emotions associated with openness appear to serve as buffers against depression (Salovey, Rothman, Detweiler, & Steward, 2000) which links, in turn, to decreased mortality risk. Additionally, data suggest that individuals higher in openness exhibit lower levels of reactivity when encountering laboratory stressors (Williams, Rau, Cribbet, & Gunn, 2009). These same tendencies toward engagement, however, have sometimes been linked to poor health behaviors (such as substance abuse) as a means of experience-seeking (Booth-Kewley & Vickers, 1994), and similar contradictory results have been found for other openness facets.

In contrast to the relative paucity of data on openness-health links, neuroticism has received a great deal of attention from health psychologists – and, although the data are more consistent, there are still contradictions. Individuals high on neuroticism experience more frequent and extreme negative feelings such as anxiety and tension (John, Naumann, & Soto, 2008), psychosomatic symptoms (Costa & McCrae, 1987), and to be discouraged by symptoms, leading to avoidance behaviors that may keep them from seeking medical treatment (Goubert, Crombez, & Van Damme, 2004). There is also substantial evidence suggesting links between neuroticism and specific physical health problems, such as Type 1 diabetes and cardiovascular disease (Smith & MacKenzie, 2006). Some suggest that the use of subjective methods may contribute to overidentification of neuroticism with poor health – indeed, the strongest health links are seen when neuroticism is examined in the context of subjective well-being (Costa & McCrae, 1987) and although most research links neuroticism to some negative health indicator, this is not true in every case. For example, neuroticism was found to be significantly protective from mortality risk for men, following the major stressor of widowhood (Taga, Friedman, & Martin, 2009). Friedman (2000) suggests that neuroticism may take two forms: one reflecting anxiety, pessimism, and depression and the other being more positive in nature, prompting vigilance and proactive engagement to alleviate symptoms and promote health.

Conscientiousness, which describes an individual's tendency toward competence, order, achievement, and caution (McCrae & John, 1992), has demonstrated consistent links with health. In 1993 conscientiousness was identified as a predictor of lifespan mortality risk (Friedman et al., 1993) and other studies are consistent with these findings, demonstrating clear, positive relationships between conscientiousness and health (Kern & Friedman, 2008). The most obvious link between conscientiousness and health is behavioral – conscientious people tend to avoid risks and engage in more protective behaviors (Bogg & Roberts, 2004), and to respond to stressors in positive and productive ways (Connor-Smith & Flachsbart, 2007). Conscientious people also tend to invest in social relationships (e.g. communities, marriages, and families), which are all associated with better health (Friedman et al., 2010).

Agreeableness, the tendency to be compliant, altruistic, and easy to get along with, has often been examined in terms of its counterpoint – hostility. Hostility reflects neuroticism (previously discussed) and low agreeableness. It predisposes one to chronic stress and is also related to poorer health behaviors, such as smoking and alcohol use, all of which are relevant to subsequent disease (Bunde & Suls, 2006). Conversely, individuals higher on agreeableness work better with others and often have healthier social relationships (John, Naumann, & Soto, 2008); they cope more effectively with stress, and use more social support (Connor-Smith & Flachsbart, 2007). Not surprisingly, agreeableness predicts subjective measures of health, but is less consistent when it comes to objective indicators (Roberts et al., 2007).

Finally, we turn to extraversion – a trait including assertiveness, gregariousness, and warmth – which has been inconsistently linked with health (Roberts et al., 2007). The facet of extraversion being examined, as well as its combination with other facets and traits, seems particularly important. For example, it is suggested that more assertive individuals may respond differently to stress, be more proactive in preventative health care, and be more engaged in their own recovery processes (Howell, Kern, & Lyubomirsky, 2007); sociability is associated with positive engagements (Carver & Connor-Smith, 2010); and social individuals may interpret situations as less stressful and have more resources with which to counteract stress (Fredrickson, 2001). At the same time, extroversion may encourage some to enter situations that promote unhealthy habits (Raynor & Levine, 2009).

It is clear that modern scientific conceptions of health must include psychological and social aspects – one useful way of framing these is the personality perspective. As is seen throughout this piece, the associations are complex and interactive – there are no simple associations between personality and health.

See Also

Agreeableness
Anxiety
Conscientiousness
Neuroticism
Openness

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Personality and Well-being

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Observing newborns in a hospital nursery, it is clear that some of the babies are happier than others. This noticeable feature of any group of people persists throughout life. Largely independent of specific circumstances, some people are happier, less unhappy, and more satisfied with their lives than others are. At least part of the explanation for the stability of well-being lies in reliable individual differences or personality. This entry reviews the substantial relationship between personality traits and well-being, summarizing the ways psychologists have tried to understand this relationship, moving from a focus on personality leading to (or influencing) well-being to a more nuanced and increasingly bidirectional perspective.

History, Measurement, and Associations

Both well-being and personality have been of interest to humanity for millennia: Hippocrates attached the bodily humors not only to emotional qualities (e.g. carefree, optimistic) but to personality traits (e.g. lively, talkative). Still, the emergence of the current vibrant study of well-being and personality can be traced to less than 40 years ago. The science of well-being gained its surest footing in the 1980s when, in a landmark article, Diener (1984) defined subjective well-being (now often termed *hedonic* well-being because of its emphasis on subjective feelings) as comprising the amount of positive affect (PA) and negative affect (NA) a person experiences along with an evaluative judgment of life satisfaction. Similarly, although factor analyses had long been applied to personality traits, it was in the 1980s that the dominant trait approach to personality truly gained traction. Five broad traits were identified (e.g. Costa & McCrae, 1988), including neuroticism (sometimes named for its opposite, emotional stability), extraversion (outgoing, sociable), openness to experience (unconventional, creative, open-minded, interested cultural and intellectual pursuits), agreeableness (kind, nice, gentle), and conscientiousness (reliable,

dependable, persistent, orderly). Both well-being and personality traits are typically measured using face valid self-report scales, allowing these variables to be measured in large, representative samples. As such, conclusions about the associations between well-being and personality have been tested rigorously using large cross-sectional and, at times, longitudinal datasets.

Research strongly indicates that personality traits are one of the most robust concurrent predictors of well-being. Meta-analyses (DeNeve & Cooper, 1998; Steel, Schmidt, & Schultz, 2008) strongly support the following associations between personality and well-being. Neuroticism is negatively correlated with well-being: it shares negative relations with PA and life satisfaction and a positive association with NA. Extraversion is positively correlated with well-being (especially PA). Agreeableness and conscientiousness also share positive associations with well-being. Longitudinal evidence extends some of these associations in predictable directions. Extraversion predicts greater PA and neuroticism predicts greater NA and lower life satisfaction, prospectively. Agreeableness predicts increases in life satisfaction over time (e.g. Specht, Egloff, & Schmukle, 2013).

What explains these consistent, robust associations? The way scientists have sought to answer this question has changed as research has accumulated. Early attempts to explain the association between personality and well-being were often framed in terms of how personality might influence well-being, but more recently alternatives to this unidirectional approach have become more commonly considered. Research on the very strong association between extraversion and PA exemplifies this movement.

The Example of Extraversion

Scholars have tested a variety of highly intuitive and reasonable mediators for the association between extraversion and PA. For example, one explanation for how extraversion might influence well-being was through social activities. Such activities are a robust predictor of positive mood. Yet this sociability explanation cannot account for the fact that extraverts are happier than introverts even when they are alone (Lucas & Baird, 2004). Another possibility was that extraversion involves a susceptibility to PA, suggesting that extraverts are simply more likely to enjoy a large boost of positive mood when good things happen. Yet, in an exhaustive series of studies, Lucas and Baird (2004) found that extraverts were not only happier than introverts following positive mood inductions but also in control conditions. Research, then, points to the conclusion that high levels of PA may be "baked into" extraversion – that these variables share more than is implied in the search for the *influence of* extraversion on well-being.

Similarly, personality traits more generally predict well-being over and above variables thought to be important for a happy and satisfying life (income, marital status, employment, health, etc.) (Lucas & Diener, 2015). Research has also examined whether traits moderate the effects of life events on well-being but evidence for such effects has been inconclusive and weak. On a general level, personality shares a strong relationship to well-being that is not mediated by contextual factors. Why might this be the case?

Temperament, Genes, and Development

Consider again those infants in the hospital nursery. Temperamental differences that exist in infancy may be the building blocks of both later personality traits and dispositional well-being, suggesting that Hippocrates' ancient linking of personality traits with affective dispositions makes sense. Thinking about it in this way suggests that traits do not simply *lead to* well-being differences, but rather they *reflect* differences in temperament, genetic, and neurobiological systems that inform both personality and well-being.

Individual differences in personality traits and well-being are substantially explained by genetic differences. Moreover, an analysis of 973 twin pairs (Weiss, Bates, & Luciano, 2008) revealed that genetic sources of variation in personality and well-being overlapped, especially for extraversion, neuroticism, and conscientiousness. These analyses imply that the association between personality and well-being is, at least in part, explained by a shared (genetic) third variable.

Bear in mind that no amount of heritability suggests that environmental factors do not matter to any characteristic, nor does a genetic role in these dispositions suggest that they are unchangeable. This analysis does suggest that personality and well-being are likely to be strongly related even as they may become increasingly differentiated with age and maturity. Indeed, over time we can think of them each influencing and being influenced by the other.

The closely intertwined relationship of personality and well-being is demonstrated in their relations over time. Each of these characteristics is relatively stable but they each show normative changes as well. For personality, trait changes over the life course show increases in agreeableness and conscientiousness and decreases in neuroticism – trait changes that appear to reflect maturation or personality development (Roberts, Walton, & Viechtbauer, 2006). For well-being, research shows a normative increase of PA and decrease in NA with age. Longitudinal studies demonstrate how levels of each of these classes of variables influences the normative changes of the other.

The strong concurrent associations between personality and well-being set a context similar to ceiling effects (Hill, Mroczek, & Young, 2014). For example, high extraversion sets a high bar for positive affect and therefore extraversion is likely to predict *less change* in PA over time. Rather, extraversion predicts stable, high levels of PA with age, and neuroticism predicts less decline in NA with age (Charles, Reynolds, & Gatz, 2001). Such results demonstrate how personality contextualizes age-related well-being changes and show personality as a force for stability in well-being.

The Pursuit of Happiness and Personality Development

Even longitudinal studies are correlational and fully understanding of the association between personality and well-being requires consideration of the pathway *from* well-being *to* personality changes. Well-being may influence personality because it provides a powerful incentive to engage in behaviors that lead to pleasant feelings. An individual might change his or her typical behavior to gain happiness. The resulting affect might reinforce that behavior. Behavioral changes might become routinized such that they become part of

the person's typical repertoire, a part of his or her personality. Is there any evidence for well-being predicting trait changes?

Two large-scale longitudinal studies have demonstrated that high stable levels of well-being systematically predict increases in conscientiousness and agreeableness, and decreases in neuroticism (Soto, 2015; Specht, Egloff, & Schmukle, 2013), a pattern of trait changes that is widely considered to represent personality development. Thus, high well-being appears to foster behaviors and feelings that contribute to increases in mature personality traits.

Alternative Approaches to Personality and Well-being

There are other ways of conceiving of personality and well-being. Personality encompasses not only traits but a host of other variables, including motives. Motivational pursuits representing intrinsic (vs. extrinsic values) are positively predictive of well-being (Sheldon & Krieger, 2014). Other personality constructs (e.g. beliefs and expectancies), as well as lower-level trait facets, are related to well-being in very intuitive ways. It is likely that as research continues to explore the association between personality and well-being, each class of variables will be studied in ever more fine grained detail. In addition, subjective well-being does not subsume all of the ways well-being has been conceptualized. For example, "flourishing" is an approach to well-being that balances both subjective well-being and indicators of social well-being. Flourishing is less strongly related to traits and may be less genetically related to them as well (Keyes, et al., 2015).

Self-Regulation and the Changing State of Well-being

Consider that two components of well-being, PA and NA, include state-like aspects. That PA and NA are responsive to life events and circumstances is crucial to their role in self-regulation. Moods tell us how things are going and spur us to take action when the news is not good. If well-being were perfectly stable, self-regulation of goal-directed action could not occur. Consider, as well, that recent research (using longitudinal datasets) has documented long-term changes in well-being (typically declines) spurred by life events (Luhmann, Hofmann, Eid, & Lucas, 2012). Such results suggest that some events are not so easily adapted to as was previously thought. Thus, although personality supports the stability of well-being, it is not immune to changes fostered by life events. Happiness is not wholly a "personality-thing." However, the two psychological characteristics are sufficiently linked that one ought not to be considered without the other. Personality and well-being are strongly connected and best understood when considered together.

See Also

Big Five
Ed Diener
Extraversion

Life Satisfaction
Positive and Negative Affective States, Assessment of
Twin Studies and Personality

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Self-Healing and Disease-Prone Personalities

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Introduction

Since the turn of the twentieth century, the leading causes of death have shifted from infectious diseases like tuberculosis to chronic diseases like cardiovascular disease, cancer, and obstructive pulmonary disease. The biomedical model of health – whereby the absence of disease is equated with health – successfully fostered the dramatic decreases in illness and death from infectious diseases through major improvements in sanitation, nutrition, inoculations, and antimicrobial medications. Modern societies are no longer devastated by the scourges of tuberculosis, enteritis/diarrhea, and diphtheria; these were the clear triumphs of the biomedical model. The leading causes of impairment and premature death in modern society – chronic diseases that develop slowly over long time periods without an infectious microorganism – are heavily influenced through behavioral pathways, and are not as responsive to the previously successful tactics derived from the biomedical model. Engel's biopsychosocial model (1977) jointly considers biological, psychological, and social characteristics to determine the cause, development, and treatment of disease, as well as the promotion of wellness. The shift from the *biomedical* to the *biopsychosocial* model of health introduces a new way of thinking: instead of health being the default, health becomes a pattern of wellness-promoting thoughts, behaviors, and emotions that lead to healthy psychosocial pathways.

Research psychologists have elucidated many core links between personality and health, providing scientific insight into the questions of *who* gets sick and who stays well. Much of this work initially faltered as researchers searched for narrow personality correlates of single diseases – for example, "hurry-sickness" and heart disease. There are two substantial flaws with such an approach. First, personality traits do not exist in a vacuum, but rather accompany other traits and unfold in situations and contexts. Thus, focus should be on how multiple personality characteristics play out across different situations throughout the lifespan. Second, instead of considering individual disease outcomes, it is much more

sensible and heuristic to consider broader outcomes: for example, although a certain trait or behavior pattern may predict decreased odds of heart disease, it is likely not a healthy personality if the individuals succumb to cancer at an early age instead. Indeed, ideas of a coronary-prone personality stumbled, with insufficient attention both to the construct itself and the broader health outcomes. In other words, longitudinal studies with multiple predictors and multiple outcomes are necessary when seeking to understand the interactional patterns that act on health across the years.

Studies focused on such broad, long-term health been encouraged by Howard S. Friedman's concepts of the *disease-prone* and *self-healing personalities* (Friedman & Booth-Kewley, 1987; Friedman, 1991). These pathways toward disease or health emphasize an individual's fit with the environment, consider both traits and situations, and are considered to be self-reinforcing through the processes of situation selection and evocation. Some individuals create better matches and healthier environments for themselves over time while others head from crisis to crisis. These pathways are characterized by distinct ways of thinking, feeling, and behaving.

Disease-Prone Personality

Some individuals find themselves, or place themselves, in environments that are a poor match for their biopsychosocial needs. That is to say, an individual's environment (e.g. job, social environment, cultural context) is not supportive of or conducive to the individual's personal needs, goals, or values. This kind of mismatch may lead to disease through inter-related combinations of: unhealthy *behaviors* such as substance abuse; chronic negative *emotions* that disrupt social life; and chronic *physiological* disturbances such as changes in metabolism, sleep, immune function, and breathing patterns.

Personality leads people to encounter better or worse environments and to construe events in a certain light (Friedman, 2007). First, although some events, such as being struck by lightning, seem random, not everyone stays outside during storms, drives recklessly without a seatbelt, bounces from one bad marriage to another, or wanders dark alleys alone. Impulsive, lonely, hostile, insensitive, depressed or otherwise immature people are more likely to put themselves into risky situations and objectively face more stress (Friedman & Kern, 2014). Second, disease-prone individuals are less likely to find the positive that might emerge from stress or challenge, thus missing out on opportunities for growth or meaning-making. Likewise, an individual with a disease-prone personality is more likely to cope with chronic stress by using drugs, drinking alcohol, over-eating unhealthy foods, and engaging in promiscuous sexual relationships – behaviors that promote disease and predict a shortened lifespan.

Individuals with a disease-prone personality may be dispositionally hostile. While some are easily frustrated and excitable, others are more cynical and alienated (Friedman, 1998). Though the majority of studies focus on hostility's association with cardiovascular disease (via autonomic nervous system hyper-reactivity), there is evidence that hostility is predictive of other diseases and all-cause mortality as well (Barefoot & Williams, 2010). Chronic antagonistic behavior is frequently associated with drug or alcohol abuse, violence, and risk-taking. Moreover, hostile proclivities generate interpersonal disputes and disrupt social support networks that are important to good health in many ways.

Disease-prone individuals may also be repressed – unassertive and compliant, lacking the self-disclosure that can promote health (Pennebaker & Seagal, 1999). This pathway is also likely related to feelings of control and self-regulation. For example, when individuals write about traumatic events, they begin to make sense of those events, and gain a sense of coherence and purpose. Repression can prevent such sense-making, which in turn may both evoke physiological responses and disrupt social relations. It may be, however, that repression is often a red herring for chronic stressful challenge; the underlying issue is the severe emotional imbalance in the first place (Friedman, 1998).

Depression is the most controversial and misunderstood relation between personality and disease. Depression is indeed associated with chronically elevated levels of the stress hormone cortisol and with poor health behaviors such as irregular sleeping and eating, impaired social relations, and substance abuse. But the causal pathways between depression and health are undoubtedly multifaceted and multidirectional. Depression can be the *result* of as well as a contributor to illness. Depression may also be the result of third variables – such as chronic physical inactivity – that affects both personality and disease. Much evidence suggests that treating patients who have cardiovascular disease for depression does not necessarily reduce the overall risk of dying (Friedman & Kern, 2014; Rutledge, Redwine, Linke, & Mills, 2013). Thus, depression should be considered an important part of a complex web of associations rather than as a direct cause of disease (Friedman, 2007). The role of depression cannot be understood without tracking life experiences across the long term, again highlighting the importance of life-span studies focusing on all-cause mortality (Friedman & Kern, 2014; Friedman & Martin, 2011).

Self-Healing Personality

Individuals with self-healing personalities are emotionally balanced, secure, enthusiastic, and constructive. They are more likely to live long, healthy lives. Some are especially alert, socially responsive, and energetic, while others are especially calm and conscientious. In both cases, good mental health promotes good physical health – a self-sustaining path that unfolds across time (Friedman, 1991). Yet, despite pop culture health tips, endless lists of "do this" and "don't do that" do little to increase health and longevity. Instead of quick tips and tricks, promoting health and longevity depends on mature lifestyles. People with the self-healing personality live such wellness-promoting lives through creating a virtuous circle of thriving.

Individuals who are self-healing are likely to self-select (put themselves) into suitable environments. This is not to say that they avoid challenge. Indeed, many such people select demanding jobs or hobbies, but the challenge of these experiences constitute healthy stimulation. Instead of being interpreted as threats, challenges are viewed as exciting opportunities. Not only do individuals with the self-healing personality have a healthy interpretation of challenge, but they also develop the social support to help them surmount the challenge. For instance, a healthy work environment can be highly challenging, but also provide the individual with social value, and the resources and control to complete the job. Individuals who advance in such demanding, challenging jobs or tasks tend to thrive and live longer (Friedman & Martin, 2011).

A sense of purpose can be important to self-healing individuals fulfilling commitments in the face of challenge. Rather than being blindly optimistic, self-healing individuals gain a sense of meaning from persevering toward their goals. These goals are often powerful and meaningful in their own right, and may include issues of beauty, justice, and understanding. This perspective allows them to adopt valued, meaningful pursuits though abstract goals (Maslow, 1943). Becoming mature or self-actualized involves having a growth orientation that supports working to realize and fulfill one's potential. Self-healing individuals have such a mature growth orientation – marked by spontaneity, creativity, playfulness, and problem-solving ability – which keeps them motivated in working toward their goals (Csikszentmihalyi, 1996; Friedman, 1991; Maddi, 2016).

Self-healing individuals often help others thrive. Health resides within a social context, and by helping others, self-healing individuals promote positive social relationships. Having a reliable social network means having better sources of information, receiving more help, and more advice support in times of need. Such individuals have people they care about, and who care about them. Self-healing individuals are likely to have hobbies and habits that involve positive social interactions; these social interactions reinforce their active, engaged, and healthy lifestyle, maintaining a healthy trajectory (Suls & Rothman, 2004).

Finally, selection into healthy environments, including evocation of ties with healthy others, helps self-healing individuals to maintain homeostasis. The concept of homeostasis, developed by physiologists Claude Bernard and Walter Cannon, involves internal equilibrium – keeping cells and organs healthy to keep an individual healthy. It is not that self-healing individuals do not experience stress and significant physiological arousal, but they are able to return to homeostasis relatively quickly. In other words, self-healing personalities are able to regulate their reactions, keeping them on a healthy pathway toward long life, even in times of challenge.

Applying the Self-Healing Personality

The constellations of biopsychosocial patterns and responses of the self-healing personality can vary from person to person. Simple or generic health advice is not appropriate for everyone. The idea that solutions must be tailored to individual needs seems obvious, but is often ignored (Friedman, 1998).

When we reflect on common advice, we can see where people are often led astray. For instance, striving for early retirement or forcing more beach vacations to get away from "stress" is not healthy for most individuals. In fact, for people who find fulfillment, a social network, and satisfaction from work (often because of its challenges and not in spite of them), retirement may be unhealthy. Rechanneling or redressing truly unhealthy tendencies – such as aggression and impulsivity – is more effective for health promotion than adopting the common lore that everyone should relax, have a drink, and be happy.

Shifting onto a self-healing trajectory usually involves slowly changing habits and altering certain social environments. When individuals adopt healthier behaviors and healthier environments (especially including healthier social groups), their personalities often follow – becoming less hostile and more prudent, for instance. Individuals who shift onto this pathway will begin to seek out and find themselves in environments and situations that

promote positive and productive lives in their communities – be it team sports, prosocial religious involvement, or mature leadership at work, for example.

There is no one specific activity or routine that will shift an individual onto a healthy pathway toward a self-healing personality, but by engaging in activities that incorporate these goals, individuals increase the odds of a virtuous cycle of good health.

See Also

Howard Friedman
Personality and Aging
Personality and Longevity
Personality and Health

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Individual Differences in Coping with Stress

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Introduction

To understand individual differences in coping, it is necessary first to define the concept of stress. From a psychological viewpoint, stress occurs when an individual confronts a situation that is perceived as taxing or exceeding their capacity to adapt, and as threatening to their well-being. Thus, stress can be viewed as resulting from a specific type of person-environment interaction. The experience of stress may involve *threat* (anticipated future occurrence of adverse event), *harm* (the perception that adverse consequences already exist), or *loss* (the perception that something desired has been taken away). Within this framework, coping includes all efforts, both behavioral and psychological, to master, tolerate, reduce, or minimize stressful experiences and associated distress, irrespective of whether the strategies used are effective. More briefly, coping has been defined as "all efforts to manage, regardless of outcome" (Lazarus & Folkman, 1984, p. 178).

Much academic discussion has focused on the issue of whether coping should be regarded as a relatively stable dispositional characteristic or as a flexible response to stress primarily determined by situational factors. Richard Lazarus's influential book *Psychological Stress and the Coping Process* (1966) argued that, rather than focusing solely on either stable coping traits or situational characteristics, research into coping should seek to understand the complex dynamic processes involved in managing specific stressful episodes. The theoretical approach of Lazarus and his colleagues placed major emphasis on the role of "cognitive appraisal" which refers to the individual's perceptions and judgments about the nature and significance of a specific stressful transaction (primary appraisal), and the resources available for managing it (secondary appraisal).

In this transactional model, as a stressful episode unfolds over time, the interplay between primary and secondary appraisals influences the nature of the coping strategies adopted, and immediate and longer-term outcomes. Transactional models make a valuable contribution to understanding coping processes, but the complex mechanisms

of reciprocal causation among appraisal, reappraisal, coping, and affective responses are difficult to address empirically; consequently, many studies adopt less complex structural approaches. These models recognize that both consistency (as reflected in dispositional models) and flexibility (as reflected in situational and environmental influences), and possible interactions between these factors, play important roles in determining how individuals manage stressful situations (Parkes, 1986). Within this structural framework, the present entry focuses primarily on individual differences in coping, viewed from a dispositional perspective as relatively stable and consistent patterns of cognitive and behavioral responses to stress, although situational factors are also considered.

The Nature and Assessment of Coping

The earlier literature identified two forms of coping, problem-focused and emotion-focused. Problem-focused coping is aimed at removing, reducing or avoiding the *source* of stress; in contrast, emotion-focused coping seeks to *minimize the distress* associated with the stressor. In most stressful episodes, however, both forms of coping are used in combination; thus, they can be regarded as complementary, each facilitating the other, rather than independent. A more recent approach distinguishes between engagement (or approach) coping and disengagement (or avoidance) coping. Engagement coping refers to strategies directed toward managing the stressor or related emotions, while disengagement coping seeks to avoid the threat or related emotions. Thus, engagement coping includes problem-focused strategies and some forms of emotion-focused coping (e.g. seeking support, acceptance, and cognitive restructuring), while disengagement coping typically involves avoidance, distraction, wishful thinking, and denial, which function to reduce or escape distress but do not change the stressor itself.

Researchers typically use inventories of coping strategies to assess how individuals attempt to cope with stress. Among the first of such scales, the "Ways of Coping" checklist, was developed to assess problem-focused and emotion-focused coping responses. This scale was widely used and subsequently led to the development of several more sophisticated measures with specific sub-scales. However, certain broad categories of coping (e.g. problem-focused strategies, positive reappraisal, seeking support, acceptance/resignation, avoidance, expressing emotions) are common to most coping scales in current use, e.g. the COPE scale.

Coping inventories can be used in several different ways to assess individual coping behaviors. First, respondents may be asked to report in general terms how likely they would be to use each of the strategies indicated in response to stressful circumstances. This method seeks information about an individual's typical pattern of coping strategies, irrespective of situational context; it reflects a *dispositional* or *trait* approach in which coping is regarded as relatively stable over time and consistent across situations. Alternatively, individuals may be asked to describe a recent stressful episode, and report the strategies employed on that occasion. These *situational* scores may be treated as samples of behavior reflecting an individual's general coping traits, or used to examine relations between appraisals, coping strategies, and emotional responses in specific episodes. Reflecting these two possible uses, some coping inventories (e.g. the COPE scale) have been published in

two versions, dispositional and situational. One advantage of situational methods is that coping strategies are more likely to be reliably reported if they relate to a specific stressful episode rather than an abstract context. However, it should be noted that coping inventories can only assess cognitive and behavioral coping attempts about which individuals are consciously aware, and are willing to report; unconscious defense mechanisms are necessarily excluded.

Personality Characteristics and Coping

Personality plays a role at several different points in the coping process; thus, the *types of stressors* encountered by an individual, the *frequency of exposure*, the *appraisal* of stressors, and the c*oping responses* adopted are all influenced by personality characteristics. In the present context, associations between personality and coping (considered as a relatively stable pattern of cognitive and behavioral responses to stress) are of particular interest. Two different approaches to studying these associations can be distinguished (Watson & Hubbard, 1996).

1. Coping responses can be examined in relation to personality models that seek to represent a comprehensive taxonomy of dispositional characteristics. For instance, the "Big Five" model incorporates five orthogonal "super-factors" (neuroticism, extraversion, conscientiousness, agreeableness, and openness) which represent broad, general dimensions of personality. Coping traits show specific patterns of relationships with these five dimensions. In particular, neuroticism plays an important role in influencing experiences of stress and associated coping responses. Individuals high in neuroticism typically report high levels of distress, which suggests that their coping attempts are generally inadequate. Consistent with this view, research evidence shows that neuroticism is associated with greater use of potentially less effective emotion-focused coping responses, including disengagement, avoidance, self-blame, wishful thinking and withdrawal, and with lesser use of problem-focused coping, positive reappraisal, and support-seeking.

   In contrast, extraversion is associated with positive affect and well-being, and with active forms of coping, including problem-focused strategies, positive reappraisal, and engagement coping. Conscientiousness also predicts coping responses, specifically, problem-solving, positive reappraisal, cognitive restructuring, and other forms of engagement coping. Relatively few studies have examined coping in the context of openness and agreeableness but the available evidence suggests that these traits are not strongly related to coping. More recently, researchers have begun to consider how combinations of personality characteristics relate to coping traits. For instance, individuals low in neuroticism and high in conscientiousness and/or extraversion tend to use more effective coping strategies, to be less vulnerable to stress, and to have better physical health (Grant & Langan-Fox, 2006).

2. Alternatively, studies of personality and coping may focus on one or more personality characteristics (chosen for their potential relevance to the context concerned) and examine their associations with specific forms of coping. Some such studies also

include situational appraisals, and possible interactions between personality and situation, as predictors of coping. For instance, optimism is associated with the use of active problem-focused coping and planning in managing stressful events, while pessimists are more likely to disengage from the situation, and to use denial and distraction to avoid having to confront the stressful event (Carver, Scheier, & Segerstrom, 2010). However, the relationship between optimism and problem-focused coping is stronger in situations perceived as controllable; in uncontrollable situations optimists report greater use of positive re-interpretation and attempts to accept the reality of the situation. Thus, optimists appear more able than pessimists to adapt their coping patterns to their situational appraisals.

Coping in a Real-World Context

Theoretical models and associated research have greatly enhanced understanding of the psychological processes involved in stress and coping. However, the relevance of the topic extends far beyond the confines of academic research. Thus, minor day-to-day stressors (e.g. work and family hassles, time pressures, loss or theft of possessions, and interpersonal problems) and, less frequently, major life events (such as death of a close relative or friend, marital break-up, unemployment, or serious illness) impact on everyone's lives. From a wider perspective, natural and man-made disasters (e.g. earthquakes, floods, explosions, terrorist acts) are sources of severe stress with adverse effects on the health and well-being of individuals, communities and nations. In recent years, researchers have sought to understand how coping can play a role in reducing distress and maintaining well-being in these real-world situations.

For instance, among individuals who experienced job loss, coping resources (such as self-esteem and social support), and the use of problem-focused (rather than emotion-focused) coping were found to mitigate psychological distress, and predict greater likelihood of re-employment at follow-up (Solove, Fisher, & Kraiger, 2015). Adaptation to cancer also illustrates the significant impact of appraisal and coping. Thus, in a meta-analysis, Kvillemo and Bränström (2014) found that acceptance and positive reappraisal strategies were positively related to well-being, while disengagement and avoidance were negative predictors, although the effectiveness of different strategies depended on the nature and time course of treatment. Studies such as these can potentially lead to the development of intervention methods to enhance the effectiveness of coping among vulnerable individuals, and/or those who have been exposed to severe psychological trauma. However, a wide gap exists between research findings and clinical practice (de Ridder & Schreurs, 2001); the development of intervention methods has lagged behind academic research.

Much remains to be done to understand the roles of appraisal and coping in relation to the nature and severity of stressful events. There is a need for more prospective research, for greater attention to cultural, situational, and environmental aspects of coping, and for identifying the effectiveness of specific coping responses across the time course of stressful events. Nonetheless, as Folkman and Moskowitz (2004) point out, despite its inherent complexities, the research area holds great promise for explaining who thrives under stress and who does not, and for designing interventions to help people better handle both acute and chronic stress.

See Also

Conscientiousness
Coping
Neuroticism
Optimism/Pessimism Carver and Scheier Theory

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Type A/B Personalities

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Introduction

The Type A/B Behavior Pattern construct has evolved considerably in both definition and importance since it was first introduced by cardiologists Friedman and Rosenman (1959). This chapter will provide a brief overview of the Type A/B construct, as well as its measurement. In addition, this chapter will examine changes in our understanding of the relationship between Type A/B Behavior Pattern and its hypothetical impact on health outcomes, such as cardiovascular heart disease and life expectancy based on research conducted across samples representing multiple nationalities and cultures. Since individuals identified as Type A are theoretically expected to be vulnerable to stressors, this entry will summarize some of the available research on the predictive or interactive relationship between Type A/B Behavior Pattern, situational stressors, and behavioral outcomes, such as aggression.

Type A/B Theoretical Construct

The Type A Behavior Pattern was initially characterized as a behavioral pattern comprising three primary qualities: extreme competitiveness, leading to high achievement motivation and leading to vulnerability to stressors; a strong sense of time urgency, leading Type A individuals to be easily frustrated and impatient; and free-floating hostility, leading Type A individuals to be easily angered and provoked (Friedman & Rosenman, 1974). These three qualities were contrasted with the considerably more relaxed Type B pattern, which represents the opposite end of the spectrum of the Type A personality dimension. Although initially defined in terms of behavioral outcomes, subsequent theorists defined the Type A pattern in terms of motivation, such as by a drive toward self-control and mastery over the environment, self-knowledge, or self-esteem maintenance (see Contrada, Cather, & O'Leary, 1999, for details).

Measurement of Type A/B Behavior Pattern

The Type A/B Behavior Pattern is measured either through a structured interview (Friedman & Rosenman, 1959), or more typically using self-report personality inventories, such as the Jenkins Activity Scale (Jenkins, Zyzanksi, & Rosenman, 1979), the Framingham Type A Scale (Haynes, Levine, Scotch, Feinleib, & Kannel, 1978), or the Bortner Rating Scale (Bortner, 1969). Researchers have generally noticed that the internal consistency figures for self-report inventories of the Type A construct appear to be generally low to moderate regardless of the inventory (e.g. Šmigelskas, Žemaitienė, Julkunen, & Kauhanen, 2015).

Type A/B Behavior Pattern and Physical Health Outcomes

Initial research indicated a significant relationship between Type A and coronary heart disease, and the earliest meta-analysis appeared to confirm a strong and significant positive relationship between Type A and coronary heart disease (Booth-Kewley & Friedman, 1987). However, subsequent meta-analyses suggested the relationship between Type A and coronary heart disease was considerably weaker (e.g. Miller, Turner, Guijarro, & Haller, 1996; Myrtek, 2001). According to Miller et al. (1996), the strongest relationship between Type A and coronary heart disease was found in studies published before 1978. Furthermore, Myrtek's (2001) meta-analysis found no reliable relationship between Type A and coronary heart disease, and although the meta-analysis showed a weak relationship between hostility and coronary heart disease, the author concluded that the effect was so small as to be of negligible practical significance.

These more recent meta-analyses are noteworthy for pointing out that a number of studies sampling low-risk individuals showed no relationship at all between the Type A Behavior Pattern and coronary heart or a negative relationship between the two variables. Miller et al. (1996) found one factor responsible for the lack of consistent findings was a problem of range restriction. Many studies selecting participants for inclusion underrepresented initially healthy individuals. Age may also explain some of the inconsistencies, with stronger effect sizes found in younger samples than older samples. Furthermore, more recent research suggests no significant relationship exists between the Type A Behavior Pattern and cardiovascular and non-cardiovascular mortality (e.g. Šmigelskas et al., 2015). A recent examination of internal documents suggests that much of the research showing a strong apparent relationship between the Type A Behavior Pattern and coronary heart disease was funded by Philip Morris, a tobacco corporation (Petticrew, Lee, & McKee, 2012), hence suggesting the possible presence of a conflict of interest. One consequence of the inability to replicate the initial findings purporting to establish a relationship between Type A/B Behavior Pattern and cardiovascular heart disease or mortality is the increased skepticism about the legitimacy of the Type A/B Behavior Pattern as a concept. Petticrew et al. (2012) contend that contemporary research in which the Type A/B trait is used as a predictor variable amounts to "zombie science." In the process, with regard to physical health outcomes, researchers have largely abandoned the construct, with the possible exception of those providing evidence of further debunking the link between Type A/B Behavior Pattern and measures of physical health (e.g. Šmigelskas et al., 2015).

Type A/B Behavior Pattern and Aggression

The Type A/B Behavior Pattern has also been studied as a potential predictor of several behavioral outcomes. One initially promising line of research examined the potential of the Type A Behavior Pattern to moderate the relationship between provocation and aggression in adults. In a meta-analysis conducted by Bettencourt, Talley, Benjamin, & Valentine (2006), the Type A Behavior Pattern was classified as one of a set of personality traits under the category of susceptibility to provocation. As noted by Bettencourt et al. (2006), early experiments demonstrated that when provoked or frustrated, Type A individuals typically experienced greater feelings of anger or irritation and greater desire to harm those whom they believed provoked or frustrated them than Type B individuals.

Several early experiments showed a tendency for Type A individuals to behave more aggressively than Type B individuals under highly provoking or frustrating conditions, but not under neutral or nonprovoking conditions. A meta-analysis by Bettencourt et al. (2006) essentially confirmed that the above pattern of findings was relatively reliable, although inconsistent, especially among later experiments. In addition, the most recent two experiments included in the meta-analysis failed to show a positive relationship between the Type A Behavior Pattern and aggression under either provoking or nonprovoking conditions (e.g. Edguer & Janisse, 1994), thus repeating a pattern found in research examining a relationship between the Type A Behavior Pattern and various measures of physical health.

See Also

Aggression, Personality Correlates
Anger
Anger and Hostility, Assessment of
Hostility, Personality Correlates
Self-control

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Personality and Cancer

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How Can Personality Be of Importance in Cancer?

Personality can affect cancer-related processes in several ways: (1) through long-term affection of the brain ("the organ of personality") influencing its central coordinating influence on neuronal, neuroendocrine, and other major regularly processes; (2) through unhealthy life style as a consequence of abnormal personality traits; (3) through long-term negative affective states associated with anxiety disorders, depression, or substance use disorders or less adaptive coping mechanism; (4) by being a causal factor for somatic diseases (like ulcerous colitis) or mental disorders (like posttraumatic stress disorder) that predispose cancer development.

In order to explain the interaction between the personality and biological systems, several models have been developed. Here I present three of the simplest, and I use immunological changes as the mediator between personality and cancer.

The stability model focuses on the permanence of the personality as a causal factor. Although the immune system can respond rapidly, it is the long-term changes that are relevant for cancer development. A problem with this model concerns the stability of immunological measurements over time.

The interaction model emphasizes the interaction between the personality and more situational variables and focuses on critical periods of the cancer trajectory. An example is successful surgical extirpation of the malignancy, and the immunological and emotional changes that follow such an important biological event. Negative life events affect persons differently due to their coping strategies. For example, a high level of optimism has been associated with a high level of immunological substances while the person is under stress, and thereby optimism buffers the negative immunological effects of the disease.

Personality affects how a person interprets and reacts to stressors, and thereby the psychic influence on biological systems is amplified or reduced. Persons thereby have their characteristic and permanent profile concerning cardiovascular, neuro-endocrine, and

cellular-immunological reactivity in relation to stressors. Over the years, variations in reactivity profiles can be of relevance for cancer development.

The integrated model states that permanent stressors, chronic depression, lack of social support, and other negative psychosocial factors can influence transition into and development of cancer. However, they did not consider high neuroticism as a common mediator in relation to many of these factors. These factors interact with hormonal stress response, circadian rhythms, erogenous viruses, and immune responses contributing to the development of cancer.

Personality and Risk of Cancer

An eventual direct link between various personality traits and increased risk of cancer development has been investigated in many studies. Here I will just present findings from a representative study in order to present the methodology applied. A study based on six population-based samples of altogether 42,843 persons among whom 2,156 developed cancer during a mean of 5.4 year follow-up, found no significant associations between the Big Five personality traits and cancer development (Jokela, Batty, Hintsa, Elovaino, Hakulinen, & Kivimäki, 2014).

As there is a considerable association between personality and depression, I briefly present a meta-analysis of the association between depression and cancer. No significant associations between depression and cancer, but increased level of depressive symptoms increased the risk of cancer-specific mortality by 25% and the depression-specific mortality with 39% (Satin, Linden, & Phillips, 2009). Although there are a few deviations, there is solid evidence for the conclusion that there is no direct significant association between personality traits and increased risk of development of cancer.

Personality and Screening and Counseling Concerning Cancer

Among women under 50 with a high level of education and regular mammography was significantly associated with basic traits like high conscientiousness and high extraversion, as well as lower level of depressive symptom. Personality traits associated with irregular mammography could be associated with the opposite personality profile, but this has been less researched similarly to official campaigns for cervical smears. Genetic counseling seeks to inform the individual as precisely as possible his/her risk of cancer due to the presence of hereditable mutations. Several studies have shown that individuals with low level of optimism (high level of pessimism) reported such counseling as stressful. The same was observed in women with high levels of neuroticism.

To sum up, both cross-sectional and longitudinal studies have demonstrated that personality factors significantly influence acceptance of and distress related to cancer screening and genetic counseling. Organizers of such health care programs should consider this in their planning.

Personality and the Diagnosis of Cancer

There are relatively few studies on the influence of personality on coping with a cancer diagnosis. Individuals with high levels of optimism and low levels of neuroticism are less disposed to mental distress reactions both at diagnosis and 12 months later. All studies lack personality measurements before diagnosis, and even if we presume stability of basic personality traits, they can change as a consequence of the trauma of a cancer diagnosis.

Personality and Cancer-specific Mortality

A meta-analysis of 157 studies of the associations between psychosocial stress and cancer survival concluded that cancer patients who reacted with marked distress or maladaptive coping mechanisms had 11% poorer survival and 125% increase in mortality. All the personality factors studied had strong associations with high neuroticism (Chida et al., 2007).

Several prospective studies with sufficient statistical power have all reached the same conclusion: high neuroticism is significantly associated with raised general mortality, but not with cancer-specific mortality. This is what the study by Jokela et al. (2014) concluded.

Personality and Cancer Survivorship

There are several definitions of cancer survivorship, such as intermediate (1 to 5 years since diagnosis) and long-term (more than 5 years since diagnosis). Several studies of optimism in breast cancer survivors have reported both significant and nonsignificant associations in intermediate survivors.

Few studies have yet examined personality in relation to long-term survivorship. In testicular cancer survivors at a mean of 11.4 years after diagnosis, high neuroticism was significantly associated with chronic fatigue, relapse anxiety, mental distress, neurotoxic side effects after chemotherapy, increased levels of somatic symptoms, and increased use of alcohol and anxiolytics (Grov, Fosså, Bremnes, Dahl, Klepp, Wist, et al., 2009).

Can Cancer Change the Personality?

To become a cancer patient obviously changes the narrative part of the personality, and the new identity as a cancer patient could make more or less impact on coping styles and values in life. Posttraumatic growth refers to positive personality changes owing to the struggle with the trauma of cancer, and not due to the trauma itself. The concept is currently understood in two ways, either genuine personality changes or psychological defence (reaction formation) against the painful physical and emotional consequences of cancer. The relationship of basic personality traits to posttraumatic growth is far from settled.

Personality, Lifestyle, and Cancer Prevention

Unhealthy lifestyle characteristics such as smoking, being overweight, hardly any physical activity, unhealthy diet, hazardous use of alcohol, increase the risk of cancer development, cancer recurrence, cancer-related mortality, and severe co-morbid conditions like cardio-vascular diseases or diabetes. Lifestyle is strongly associated with various personality traits.

High intake of fruits and vegetables protects against the development over several cancer types. A review states that such intake is significantly associated with an effective self, control over behavior and motivational control, and such behavior is definitely associated with high conscientiousness (Shaikh et al. 2008).

A meta-analysis of 33 studies showed that high neuroticism was significantly associated with less *physical activity*, while high extraversion and conscientiousness were associated with more activity (Rhodes & Smith, 2006).

An analysis of nearly 80,000 persons showed that high extraversion and neuroticism, and low conscientiousness were significantly associated with daily *smoking* (Hakulinen, Hintsanen, Munafò, Virtainen, Kitvimäki, Batty, & al., 2015). In the same material, high extraversion and low conscientiousness were significantly associated with *high alcohol consumption,* and transition from moderate to high alcohol consumption over time.

A meta-analysis of 194 studies of *conscientiousness* showed that a high score on this personality trait was significantly associated with less smoking, alcohol consumption, violence, risky sexual behavior, or suicidality. In a lifetime perspective, high conscientiousness was significantly associated with a healthy lifestyle and longer lives (Martin, Friedman, & Schwartz, 2007).

The Future of Personality and Cancer

High neuroticism is the main personality trait related to various aspects of cancer, its trajectories, and adverse effects (Lahey, 2009). Neuroticism is strongly related to depression and fatigue that also have been in focus concerning cancer development and prognosis. Unhealthy life style is also associated with deviant personality traits, and an inflammatory-network model for cancer development has been based on such factors and other types of environmental factors. Personality patterns are established early in life, and they influence the "interior milieu" over decades. Researchers have therefore emphasized that a lifetime perspective is mandatory for identification of etiological factors related to life style diseases including cancer. Ben-Shlomo & Kuh (2002) defined this perspective as follows: "the study on long-term effects on chronic disease risk of physical and social exposures during gestation, childhood, adolescence, young adulthood and later adult life. It includes studies of the biological, behavioral and psychosocial pathways that operate across an individual's life course, as well as across generations, to influence the development of chronic diseases." The lifetime approach demands an understanding of the natural development of biological and psychological systems over time. In his 2008 paper: "The multiple linkages of personality and disease" Friedman described several models for the association between personality and diseases, and he concluded: "A frustrating fact of life is that it is often true that more than one linkage is simultaneously causing an observed association, but most study designs cannot detect multiple causal linkages. In other words, many health outcomes are multidimensional and are multiply and complexly determined; the phenomena thus push us to the limits of model construction and research design and analysis."
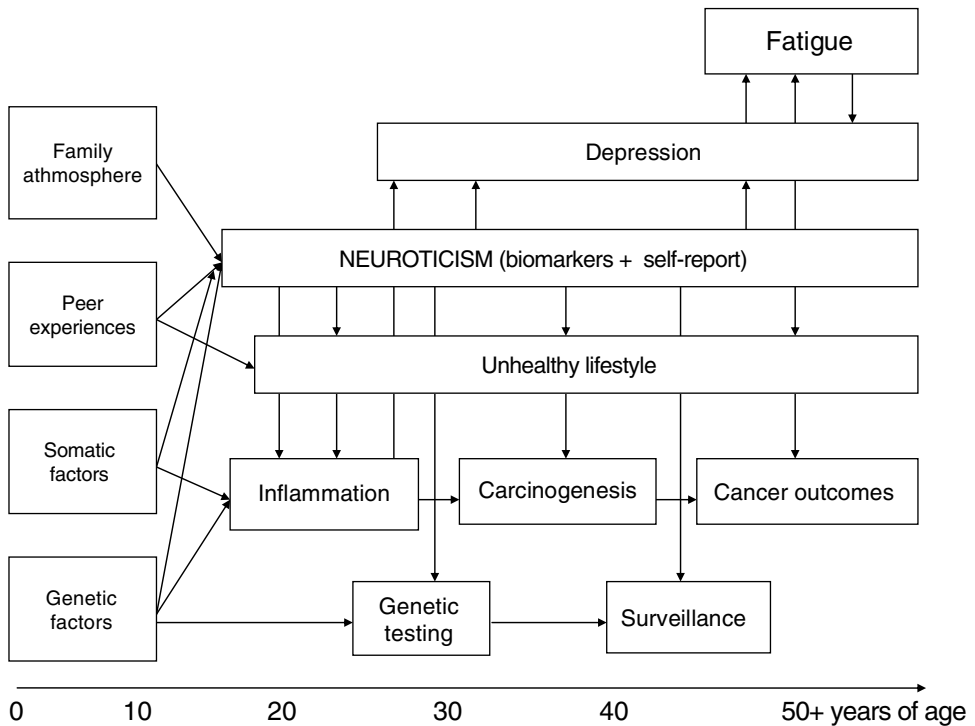
Figure 1 Lifetime model of the relationship between neuroticism and cancer.

Along these lines, I present a more complex model for the association between personality traits and cancer development for future studies (Figure 1). [Figure 1 near here]

See Also

Coping
Neuroticism
Personality and Longevity
Personality and Health

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Resiliency and Hardiness

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Introduction

Some psychologists consider resilience to emphasize how people can remain the same despite the imposition on them of stressful circumstances. One emphasis of this position is that it is helpful to avoid stresses. In contrast, personality hardiness emphasizes resilience as the process of change, growth, and development that is provoked by dealing with, rather than avoiding stressful circumstances (e.g. Maddi, 2002; Maddi & Khoshaba, 2005).

In this regard, an assumption behind personality hardiness is that life is by its nature changing and stressful, so involving oneself in this process helps one grow and develop toward greater fulfillment. This assumption derives from the existential position (Kierkegaard, 1954) that everything we do in life is the result of making decisions. As life is on ongoing process of change, each decision with which we are faced involves choosing the future or the past. Although choosing the future is developmentally best, it brings anxiety because the outcome cannot be predicted in advance. But, if we decide to avoid anxiety by choosing the past (i.e. what we already know and are doing), we encounter the existential guilt of missed opportunity, boredom, and emptiness of living.

Based on this, the hardiness approach assumes that, in one's ongoing living, the best way to establish a pattern of choosing the future, rather than the past, is to develop the personality pattern of hardiness. In this, hardiness is considered a pattern of attitudes and strategies that help one do the hard work of choosing the future rather than the past (Maddi, 2002). The more than 40 years of research, consulting, and counseling that emerged from this conceptualization has solidified the position. Early on, Maddi's work involved showing that people who express more interest in change are also likely to be more creative in their work. But, in specifying the personality characteristics involved more completely, and the particular effects of stresses on functioning, it seemed important to carry out a relevant experiment, rather than just doing correlational research.

The Illinois Bell Telephone Project

In the 1970s, Maddi was a consultant for Illinois Bell Telephone (IBT). At that time, the US telephone industry was a federally regulated monopoly, whose member companies only had to provide a cheap and reliable telephone service, and did not have to worry about their bottom lines. But, it became clear that this situation had to change, as the beginning of the internet was opening up the field, and encouraging international competition. The US government made clear that the telephone industry would need to be deregulated in order to motivate competition for greater possibilities and income in the newly developing circumstances.

With the help of IBT decision-makers, Maddi and his research team in 1974 began yearly testing of 450 managers, in a longitudinal research study to determine the effects of the deregulation on them. Each yearly testing included questionnaires and interviews. Also available were yearly job performance evaluations done by the company. Six years into the study (in 1980), the federal deregulation occurred, as a major disruption on the industry and its companies. In the year following the deregulation, nearly half of the managers in our sample were terminated. In the research, we continued to test the managers, whether they continued or were terminated, with the questionnaires, interviews, and job evaluations each year for the following six years. The study is still regarded as a classical natural experiment.

The study results showed that, in the deregulation years, nearly two-thirds of the sample fell apart in various ways. There were clear signs of major anxiety, depression, and anger, undermining performance at work. These signs included violence, data loss, inability to make decisions, and decision-making avoidance. And, in home life, there were also signs of being undermined, such as divorces, substance abuse, and even suicides.

In contrast, the other third of the sample not only survived, but also thrived, following the deregulation. At work, they either rose up in the ranks, or if they were among those terminated, they found significant jobs in other organizations, or even started their own companies. In all this, they were able to give and get social support with their significant others (at work, or at home) and were able to grow and develop by dealing effectively with the deregulation stresses.

Of particular importance in developing Hardiness assessment was the comparison of managers who reacted resiliently to the deregulation stresses with those who did not (Maddi, 2002). The managers who reacted well to the deregulation had, in the six years before this upheaval, been much stronger than the others in the attitudes of commitment, control, and challenge. No matter how bad things might get, they wanted to stay involved with people and contexts (commitment), continue to struggle to have an influence on outcome (control), and learn how to grow and develop by trying to deal effectively with stresses (challenge). In contrast, the managers who fell apart under the deregulation had even before it showed definite signs of playing it safe by avoiding stresses, and if unsuccessful in this, by sinking into alienation and powerlessness. These results led to conceptualizing hardiness as the attitudes (the 3Cs of commitment, control, and challenge) and strategies (problem-solving, rather than avoidance, coping; socially supportive, rather conflictful, social interactions; and beneficial, rather than overindulgent, self-care). It appeared that the hardy attitudes provided the courage and motivation to be able to do the hard work of hardy strategies that turned stresses into growth advantages. All this is quite

consistent with the existential view, well summarized by Nietzsche as "whatever doesn't kill me makes me stronger."

Specifically, the pre- and post-deregulation data permitted a study (Khoshaba & Maddi, 1999) of the early-life experiences of managers on performance after the deregulation. This showed that the managers who thrived on the deregulation had reported remembering a more disruptive, stressful early family life, and having been selected by their parents as the hope of the family. They indicated having accepted this role and working hard to justify it. These results are consistent with the assumption that hardiness can be learned, rather than being inborn. It also indicates that parents can help their children grow in hardiness by having them know that life is by its nature stressful, and that involving themselves in this, rather than denying it, is the way to grow and develop toward a better life. In contrast, parents who are overprotective and controlling may be jeopardizing their children's growth toward hardiness.

Further Evolvement of the Hardiness Approach

In the years since the IBT study, there have been many additional research studies and consulting work on the hardiness approach. In this process, our various versions of the hardiness questionnaire have been translated into more than 15 Asian and European languages, and are also used in English in numerous countries. There have also been reviews of hardiness research (e.g. Maddi, 2002). In the research studies covered in these reviews, it has been shown that the hardy attitudes are positively related to each other, and to the hardy strategies of problem-solving coping, socially supportive interactions, and beneficial self-care. This hardiness pattern has been positively associated with enhanced performance, conduct, mood, and health in samples of college and high-school students, and working adults in military, firefighting, sports, and business contexts (e.g. Maddi, 2002).

In the process of research and consulting, there has been systematic improvement of hardy attitudes measurement. Over the years, the measure has been shortened and improved. The current version (Maddi, 2001) is the 18 Likert-item Personal Views Survey, III-R (3rd edition, revised). Examples of items are, for commitment, "I often wake up eager to take on life wherever it left off"; for control, "When I make plans, I'm certain I can make them work"; and for challenge, "Changes in routine provoke me to learn." Chronbach Alpha coefficients for all three Cs range in the .70s, and for total hardiness are even higher. The 3Cs are positively correlated, and each of them shows a high correlation with the total hardiness score. Also, consistent with hardiness theorizing, Sinclair & Tetrick (2000) have found that factor analysis of the hardiness test items yields the three empirically related first-order factors of commitment, control, and challenge, and that these factors are indeed positively related to the second-order factor of hardiness. This pattern has supported the conceptually-emphasized use of a total hardiness score. In another study (Maddi & Harvey, 2005), no cross-cultural or demographic differences were found in hardiness.

By now, there are many especially significant studies on the role of hardiness in various performance, conduct, and health activities (Maddi, 2002). For example, in samples of bus drivers, lawyers, and nurses, hardiness was found to be positively correlated with measures of performance and satisfaction, and negatively correlated with anxiety and depression.

There are also similar findings in American employees experiencing the culture shock of work missions abroad, and foreign immigrants to the United States. In a study of sports performance, hardiness levels of male, high-school varsity basketball players were measured in the summer, and then their performance was obtained in the ensuing season. Hardiness predicted six out of seven indices of performance in the expected direction, even though all the subjects were varsity players.

Also, there have been studies (Maddi,2002) concerning hardiness and military personnel. For example, it was found that soldiers high in hardiness adjusted better to health and life stresses than did those who were low in hardiness. Further, among soldiers returning from operational deployments, there was a positive relationship between hardiness and readjustment to former lives. Also found was a positive relationship between hardiness and leadership behavior among US Navy cadets. Hardiness was also a positive predictor of performance success in soldiers undergoing special forces training among Norwegian Naval Academy cadets. Similarly, there was a positive correlation between hardiness and both retention and performance excellence in US Military Academy cadets. In addition, there are studies showing that hardiness is negatively related to conduct problems, such as alcoholism, drug use, and gambling (Maddi, 2002).

Comparison of Hardiness and Other Possible Predictors

Understandably, questions have arisen as to whether hardiness is little more than some other personality variable. This has led to several empirical studies comparing hardiness and other possible predictors of performance, such as negative affectivity, neuroticism, optimism, and grit. These studies support the conceptualization of hardiness as separate from these other variables (Maddi, 2002).

Hardiness Practical Applications

There is a growing need for hardiness assessment and training, due to the increased rate of social, technological, and cultural change being fueled by our transition from industrial to information societies. Trying to adapt to the pressures of change, companies are continually restructuring (e.g. decentralizing, merging, downsizing, upsizing), which certainly influences the lives of employees. In the attempt to help individuals deal well and grow with all these changes, Maddi and Khoshaba have developed hardiness assessment and training procedures that can be used in consulting with individuals and organizations.

As to hardiness assessment, there is now the HardiSurvey III-R, a valid and reliable 65 item-questionnaire that measures the vulnerability factors of stress, strain, and regressive coping, along with the resilience factors of hardiness attitudes, problem-solving coping, and supportive social interactions (Maddi & Khoshaba, 2001). The vulnerability and resilience factors of the test-taker are compared with each other, and with available norms, leading to a wellness ratio. This test can be taken on the website (www.HardinessInstitute. com), and leads to you receiving a comprehensive report concerning your resilience

or vulnerability under stress. As to hardiness training, there is now a comprehensive workbook (Khoshaba & Maddi, 2008) that includes instructions, exercises, case studies, and evaluation procedures concerning how to engage in problem-solving (rather than avoidance) coping, socially supportive (rather than conflictful) interactions, and beneficial (rather than overindulgent) self-care. Also shown is how to use what is learned through these procedures to deepen your hardy attitudes of commitment, control, and challenge, so that once the training is over, you will have the courage and strategies to do the hard work involved in improving your functioning in everyday living.

There are some studies showing the effectiveness of the hardiness training procedure in high-risk managers, and undergraduates (Maddi, 2002). In these studies, as expected, training improved performance, emotional states, and hardiness.

Concluding Remarks

In terms of conceptualization and empirical support, it appears that the hardiness approach has growing validity. This encourages its use in assessment and training, to increase the likelihood that individuals and organizations will be able to turn stressful circumstances from potential disasters into growth opportunities instead.

See Also

Coping
Individual Differences in Coping with Stress
Resilence in Coping
Salvatore R. Maddi

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Personality and Risk-Seeking

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Some readers have enjoyed bungee jumping, and others would like to try this; a third group of readers, in contrast, cannot even contemplate the thought of jumping off a cliff and "hoping for the best." The riskiness of an activity is a subjective appraisal. Thus, risk-seeking and personality should be considered in tandem. Risk comes in two guises. One is its meaning in the economic or decision-making literature referring to the variability of the options available to the decision maker. For example, choosing between receiving $50 now, or entering a lottery, with two options: the possibility of receiving $100 with a probability of 0.5, or of receiving $0 with the same probability. The first case is a sure bet (no loss, and no uncertainty – hence no risk); the second bet has a certain amount of risk associated with it – even though the expected amount to be won remains the same ($50). A risk-seeker might well opt for the second bet. There might even be a particular personality profile associated with such behavior, though this usually boils down to the distinction between a risk-seeking and a risk-averse personality in that decision-making situation. Thus, one might be risk-seeking when contemplating a future loss, and risk-averse when considering a future gain. Such instrumental risk-taking involves considering future outcomes, both the positive but especially the negative. Some individuals are more careful in their decision-making here, and trait anxiety is one such individual difference related to being concerned with such possible negative outcomes.

The second meaning attributed to risk-seeking is that of engaging in risky behavior, such as gambling or the use of recreational drugs, having a possible negative consequence (either immediately or in the long-term) for the risk-seeker and/or for others. For example, engaging in a risky sport such as skydiving or mountaineering, wherein accidents do happen, is an attractive option for risk-seekers, and an absurd one for those who are not risk seekers. Such recreational risk-seeking, implicates two personality traits: impulsivity and sensation seeking (or venturesomeness). The difference between these two traits is itself indicative of the form of risk-taking that might be engaged in. Sybil Eysenck (1993, p. 144) distinguishes between the two traits by means of an "analogy to a driver who steers his car around a blind bend on the wrong side of the road. A driver who scores high on Imp[ulsivity]

never considers the danger he might be exposing himself to and is genuinely surprised when an accident occurs. The driver who scores high on Vent[uresomeness], on the other hand, considers the position carefully and decides consciously to take the risk." Impulsivity implicates impulsive decision-making, hence possibly incurring risk, but not necessarily involving risk-seeking *per se*. Sensation-seeking refers to the active seeking of novel experiences, some of which involve risk, hence implicating risk-seeking. Whether impulsivity and/or sensation-seeking is involved in risk-seeking in the economic sense will be dependent on whether the impulsive individual never considers the possibility of actually losing the bet (winning nothing), and whether the sensation seeker decides consciously to take the risk of winning a larger sum of money. The anxious individual is concerned with the possible negative outcomes of risky behavior; the sensation-seeking individual tends to depreciate the riskiness of the situation. One should note that those involved in recreational risk-seeking do not necessarily exhibit risk-seeking behavior in the financial domain.

Risk-seeking can implicate antisocial behavior, especially if the activities engaged in are prohibited by law, such as gambling and the use of recreational drugs. Dangerous driving is a common problem to society, the individual endangering both self and others. Risk-seeking, however, can also implicate prosocial behavior, especially if the risky activities engaged in can save lives. Among these individuals, one would count members of the police, the fire department, rescue teams, and so forth. Such individuals score high on measures of sensation-seeking, in particular the scale indicating "thrill and adventure seeking." Individuals scoring high on this scale are also found amongst those engaged in risky leisurely activities such as rock climbing. Of course, business and pleasure can be mixed if the prosocial sensation seeker is a member of a rescue team. Others are risk-seeking in their leisure time, engaging in risky sports. Risk-seeking is not, however, an all-encompassing lifestyle: Risk seekers choose the risks they want to engage in. Those engaged in such risky activities tend to downplay the amount of risk involved, viewing their proficiency as being more indicative of their skills than of a risk-seeking inclination. In this respect, they are nonimpulsive sensation seekers: for them, they take "calculated risks," which are dependent on their level of proficiency in the activity. Indeed, one cannot engage in a risky profession or a risky sport and be cavalier about this. Planning, the use of the right equipment, training, physical ability, and experience are all part and parcel of the endeavor. Those engaged in risky sport can match their ability to the demands of the situation, experiencing flow. Such individuals score high on a second scale of sensation-seeking indicating "experience seeking." A whole tourist industry is built on such a combination of risky sport, risk-seeking, and the experience of flow. With increasing experience, risk-seeking is exchanged for more skillful performance. Those who are not high sensation-seeking risk seekers will not engage in the types of high-risk sport (surfing, skydiving, and so forth) that require such skills. Other personality traits that are involved here are self-efficacy and ego stability (i.e. low neuroticism).

There is also a dark side to risk-seeking. Some individuals engage in activities that are detrimental to society (antisocial risk-taking). Among such activities one would count various forms of reckless behavior (e.g. driving while under the influence of drugs or alcohol, bulimia), criminal behavior, and impulsive behavior. Such individuals score high on impulsive sensation-seeking, indicated in the scale assessing "disinhibition"; they also score high on trait impulsivity. Risk-seeking here is the risk involved in such activities. This might

involve long-term risk, such as an unwanted pregnancy, health complications associated with unprotected sexual activity, eating disorders, risks involved in the use of tobacco, alcohol, and other drugs, etc. Given that it is primarily impulsivity that is implicated here, it is not necessarily the case that these individuals are risk-seeking; indeed, they might not even be aware of the risks involved. The thought that one can move people over from the dark side, while still preserving their risk-seeking inclination, is a viable option. Thus, instead of using drugs, one could engage in risky sport; instead of being a computer hacker, one could find employment as a security analyst. Risk-seeking would thus be channeled into a social or perhaps prosocial activity. This, however, is an option that might work with high sensation seekers, but not with high impulsive individuals, because one's decision-making should not be impulsive, if one considers taking the risk-seeking option.

With increasing exposure to and experience of risk, perceived risk tends to decrease – especially for high sensation seekers. For those engaged in risky sports, this is usually accompanied by a self-perceived increase in mastery, competence, or proficiency in that activity. Just as sensation seeking is a trait wherein one strives for new and novel experiences – the high sensation-seeker is on a continual upward path of calibration and recalibration of the range of experiences that have been assimilated – so the risk-seeking of the high sensation seeker must balance between present skill and proficiency and the challenge of the quest. The resulting flow experienced by the mountain climber will only result when this balance is sustained. One's experience is, in part, one's interpretation of that experience, based on this balance between risk and competence. Given that trait considerations (e.g. sensation-seeking) are only part of the state-trait interaction that determines experience, risk-seeking must also be partly determined by changes in state. It is here that impulsivity, which is not only a trait but is also a state-dependent phenomenon, can play a critical role. For example, alcohol can result in impulsive decision-making; and cigarette smoking can be relaxing, but can also serve to keep one's impulsivity in check. Risk-seeking is thus both a function of one's degree of sensation-seeking – whether this be through high-risk, physical activities as implicated by one's "thrill and adventure seeking" predisposition, or through the mind, as implicated by one's "experience-seeking" predisposition, or both – and one's state of consciousness. It is important to stress that sensation-seeking is not risk-seeking *per se*. True, risk is involved, but as Marvin Zuckerman has stressed "although sensation seeking is defined by a tolerance for risk, risk is not the point of it" (Zuckerman, 2007, p. 58).

This, however, might not necessarily be the case among adolescents, who are characterized as being higher than adults in sensation-seeking, impulsivity, and risk-seeking. The study of personality and risk-seeking in adolescence has become a major area of research in recent years. Sensation-seeking is found to follow a curvilinear trend, increasing in early adolescence (ages 10–15), peaking during late adolescence (ages 16–19), and declining thereafter; and this was once proposed to be a finding having no clear developmental explanation. In recent years, a neurodevelopmental explanation has been proposed, namely the similar curvilinear trend for the maturation of subcortical structures, which are related to affective processing leading to the search for novel experiences – hence, driving sensation-seeking. Impulsivity, in contrast, is found to follow a linear trend, decreasing progressively during adolescence. The proposed neurodevelopmental explanation for this is the corresponding monotonic maturation of the prefrontal cortex and its executive functions such as planning and decision-making, which are impaired in impulsivity. Not only do these

differential developmental trends provide an influential neurobiological framework for both impulsivity and sensation-seeking, they also suggest that these two traits are different, though related. This proposition has been referred to as the "dual systems model." Risk-seeking is thus viewed as resulting from this critical combination of heightened sensation seeking with limited capacity for executive functioning (impulsivity). Adolescence is also characterized by the influence of peers on the adolescent's behavior. Thus, risk-seeking can be dependent on peer influence. Furthermore, high sensation seekers trend to prefer the company of other high sensation seekers, which naturally leads to common sensation-seeking and risk-seeking pursuits. This can result in experimenting with drugs, or participating in risky sports. The adolescence-limited onset of delinquency is also dependent on this critical juxtaposition of neurobiological, cognitive, and social factors during adolescence.

Two influential tasks have been developed to reveal risk-seeking in the lab. In the Balloon Analogue Risk Task one pumps up balloons to win money. If a balloon bursts, the money is lost. The more one pumps, the riskier it gets. In the Iowa Gambling Task, one chooses a card from one of four stacks, resulting in either a gain or loss of money. Some stacks are high risk, involving high pay-off, sometimes, but also high penalty, sometimes. These tasks have been investigated in relation to both sensation seeking and impulsivity, in both adults and adolescents. In turn, performance on these tasks has been related to substance abuse, gambling, eating disorders, and other risky behaviors. One notes greater risk-seeking in late adolescence and emerging adulthood, relative to both younger and older ages.

It is important to stress that risk-seeking is not necessarily a negative thing, as implicated in health risks or antisocial behavior; risk-seeking can be channeled into prosocial activities, such as volunteering or working in high-risk prosocial professions, but also into skillful engagement in risky sports. Risk-seeking can also surface as "thinking outside the box." The traits of impulsivity and sensation-seeking are inherently related to risk-seeking. The study of risk-seeking without a consideration of personality would be a risky venture.

See Also

Antisocial Personality Disorder
Impulsivity
Marvin Zuckerman
Self-control
Sensation-Seeking

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Personality and Suicide

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Suicide is a significant public health problem worldwide, resulting in the deaths of more than 800,000 people every year (World Health Organization, 2014). Since these deaths are behaviorally driven, and thus, to some extent, preventable, research in this area emphasizes identifying factors that may increase risk of suicidal behavior. Environmental factors, such as adverse life experiences and stress, are particularly emphasized, since mental disorders (e.g. depression) and self-destructive behaviors (e.g. nonsuicidal self-injury) linked to suicide may be reactions to these experiences. Other factors contributing to suicide are specific to the individual, often stemming from genetic or biological factors, albeit shaped by experience, that increase the likelihood of suicidal thoughts and behaviors. Personality traits are of particular relevance to suicide research since they may aid in ascertaining which individuals are more predisposed to consider or engage in suicidal behavior in response to difficult circumstances.

Personality traits are relatively stable patterns of behavior, cognition, emotion, and motivation that an individual displays across different situations. Personality is theorized to develop from temperamental dispositions, essentially biobehavioral tendencies related to emotional states (e.g. activity level, fear reactivity) that initially emerge in infancy (Thomas & Chess, 1977). These temperamental dispositions are biologically determined to some degree, as they are partly heritable, and linked with physiological processes. However, the environment is thought to have an important role in shaping which dispositions later become stable personality traits, by encouraging the expression of tendencies that may be most useful for each individual in certain situations over time.

Since personality traits partially determine behavior, they may be relevant in identifying which individuals are more likely to exhibit psychopathology. One conceptualization posits that personality traits predispose individuals to develop psychopathology. Alternatively, psychopathology (e.g. anxiety) may be the manifestation of extreme expressions of personality traits (e.g. Stress Reaction). Regardless, there is literature to indicate that personality traits and psychopathology stem from common biopsychological processes (e.g. deficient inhibitory control), suggesting they are interrelated to some degree. Indeed, personality

traits have been linked with broader dimensions of psychopathology implicated in mental disorders. Research indicates that mental disorders are interrelated to some degree and cluster around at least two main dimensions of internalizing and externalizing psychopathology. Specifically, research by Krueger has shown that symptoms of psychopathology and personality traits (e.g. disconstraint, negative emotionality) are both linked to these dimensions (Krueger and Piasecki, 2002). Specifically, the internalizing dimension is typified by symptoms and traits that include a tendency to react negatively to situations that induce strong emotions, and to experience internal distress. This internalizing tendency is considered a core feature that is expressed, albeit differently, in psychopathology including depressive and anxiety disorders. In contrast, the externalizing dimension encompasses personality traits associated with antisocial behavior, as well as impulsive and sensation-seeking tendencies, behaviors that underlie psychopathology such as substance use and antisocial personality disorder.

Importantly, the internalizing and externalizing dimensions that have emerged in psychopathology research may be paralleled in two broad subtypes of suicidal individuals identified by Apter et al. (1995). The *depressed or withdrawn subtype* encompasses individuals who exhibit emotional and behavioral characteristics of internalizing symptoms, including depressed mood, self-blame, somatic disturbances (e.g. loss of appetite, sleep difficulties), and an increased negative response to difficult circumstances. In contrast, the *irritable or aggressive subtype* is comprised of individuals who display externalizing symptoms, such as anger, frustration, impulsivity, and reduced self-control (particularly with regards to substance use, as well as aggressive and nonsuicidal self-injurious behaviors). Notably, these subtypes appear to correspond to different aspects of suicide risk. That is, individuals who are primarily depressed or withdrawn show more chronic suicidal thoughts and engage in planning a suicide attempt. While depressed or withdrawn individuals who consider suicide are naturally at increased risk of engaging in suicidal behavior, they tend to engage in attempts that are lower in lethality, perhaps due to energy deficits associated with depression. In contrast, individuals who are primarily irritable or aggressive may consider suicide, but these thoughts may be tied to rapid mood swings in reaction to temporary emotional situations (e.g. conflict, incarceration) rather than chronic depressed mood. However, they seem to be more likely to engage in suicide attempts, often more severe in nature, perhaps due to impulsiveness and higher immunity to violence.

Models of personality may aid in describing the characteristics of individuals who comprise the depressed/withdrawn and irritable/aggressive suicidal subtypes. One of the best-known models, the Five Factor Model, describes personality traits as being encompassed by five general characteristics. These characteristics are openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism/emotional stability (McCrae & Costa, 1989). However, other personality models exist that have a stronger basis in the temperament and emotion literature, in particular as exemplified by Tellegen's three factors (e.g. Tellegen & Waller, 2008). In Tellegen's model, Negative and Positive Emotionality describe the propensity to experience negative and positive affect, respectively, across situations, while Constraint describes tendencies to control or inhibit behavior. Notably, research demonstrates that dimensions in the Tellegen and Big Five models are largely interchangeable (see Table 1; Church, 1994).

Table 1 *Relationships between Tellegen's Three Dimensions and the Five Factor Model* Characteristics

Five Factor Model	Tellegen's Model
Neuroticism, agreeableness	Negative Emotionality
Extraversion, conscientiousness (stability)	Positive Emotionality
Openness to experience, conscientiousness (impulse control)	Constraint

Since Tellegen's model has been previously employed in linking personality to emotional states related to suicide and externalizing psychopathology (Verona & Patrick, 2000), and research has tied these dimensions to genetic and biopsychological processes, it may provide a useful framework in summarizing the literature linking personality traits, psychopathology, and suicide risk. Indeed, research indicates that each of Tellegen's dimensions has unique relationships with broad dimensions of psychopathology, as well as specific mental disorders, connections that contribute differently to varying aspects of suicide risk. We outline these relationships more fully below.

Low Positive Emotionality (PEM) has been linked with internalizing psychopathology implicated in suicide risk, as well as suicidality more generally (see Figure 1) . PEM typifies the tendency to experience positive emotions across situations, and is comprised of achievement, social closeness, social potency, and well-being traits. Individuals with low PEM have difficulty maintaining a positive disposition, feeling in control in life, feeling close
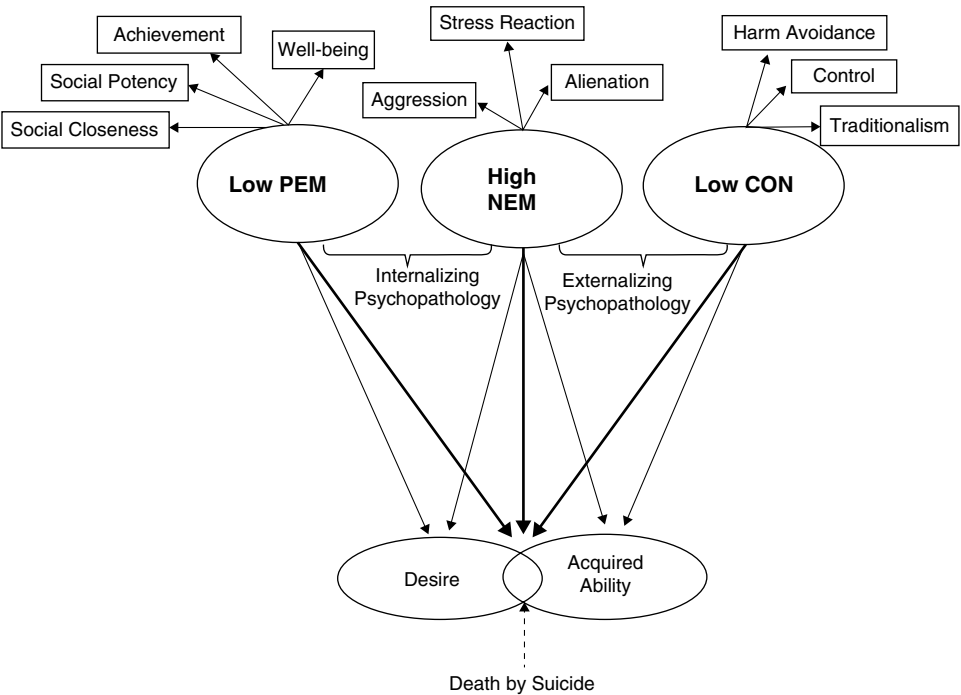
Figure 1 Model describing the interrelationships of personality factors, dimensions of psychopathology, and aspects of suicide risk.

with others, and asserting needs. Since these tendencies have implications for the individual's social functioning and perceptions of situations, aspects often utilized for developing and implementing coping strategies in times of stress, individuals with lower PEM may have fewer options to manage distressing circumstances. Perhaps consequently, lower levels of this dimension represent risk for developing internalizing psychopathology characterized by deficits in the ability to experience positive affect. Indeed, depression is most associated with increased suicide risk. And, since PEM is also implicated in feelings of competence, it is unsurprising that individuals low on this dimension are more likely to experience feelings of hopelessness that the future will improve or change, and hence, potentially more likely to consider suicide. There is also evidence to suggest that individuals low on this dimension are more likely to engage in self-directed harm such as suicide attempts (Yen et al., 2009).

Negative Emotionality (NEM) has also been linked with varying aspects of suicide risk. It is comprised of aggression, alienation, and stress reaction personality traits. These traits promote tendencies toward distress, irritability, and anxiety across situations, as well as estrangement and distrust of others in social relationships. NEM represents a general risk factor for various forms of psychopathology, including internalizing (e.g. depressive and anxiety-related disorders) and externalizing (e.g. aggressive, substance use, and antisocial behaviors), both implicated in suicide risk (Verona & Javdani, 2011). Indeed, NEM is consistently linked to suicidality, since symptoms that maintain suicide risk, including general maladjustment, alienation from others, and difficulties managing distressing feelings, overlap with trait facets of NEM. Research shows that tendencies toward negative affect have been found to predict greater levels of hopelessness, which is the construct considered to be most closely associated with thoughts of suicide. And, heightened NEM has been associated with increased risk of suicide attempts (Useda, Duberstein, Conner, & Conwell, 2004).

Finally, the Constraint (CON) dimension may have particular utility in identifying individuals who are more likely to engage in suicidal behavior versus just ideation, especially under reactive or impulsive situations. Control, harm avoidance, and traditionalism are the comprising personality facets. Together, they measure impulsivity, fearlessness or risk-taking, and conformity to social norms. CON is particularly relevant to mental disorders and suicide risk due to its implications for behavior. Indeed, individuals lacking CON are risk-takers, lack self-control, and may act quickly in order to relieve stress. Perhaps consequently, low CON has been linked with externalizing psychopathology typified by difficulties with self-control and disruptive behavior (e.g. aggression), including substance abuse and antisocial personality disorder. These disorders are also linked with increased suicide risk, possibly since difficulties controlling behavior also underlie suicidal behavior. Indeed, low CON has been associated with nonsuicidal self-injurious behavior, which is thought to function for some individuals as a means of habituating to the pain and fear needed to engage in a suicide attempt (Joiner, 2005). It has also been associated with more lethal suicide attempts as well as death by suicide (Verona & Patrick, 2000).

Collectively, Tellegen's model of personality may be used to characterize certain aspects of suicide risk. Contemporary models of suicide (Joiner, 2005; Klonsky & May, 2015) stipulate that individuals who die by suicide require more than just the desire (e.g. feelings of low belongingness and high burdensomeness to others) but also the capability to

transition from desire to engaging in suicide. In contrast, individuals who are at risk of suicide, but are less likely to die by suicide, are thought to possess only desire. In the context of these models, it may be that individuals who comprise Apter's depressed suicidal subtype, displaying internalizing psychopathology, and a personality profile involving high Negative Emotionality (estrangement from others, stress reactivity) and low Positive Emotionality (low well-being, social closeness, and assertiveness), are more likely to primarily possess the desire for suicide. These individuals are particularly likely to consider suicide over a long period of time, with a small percentage meticulously planning and dying by suicide. Conversely, individuals who display primarily externalizing psychopathology, and high Negative Emotionality and low Constraint, essentially Apter's impulsive-aggressive subtype, may be more likely to possess the ability to engage in suicidal behavior if the desire is high enough at any particular moment (rather than persistent). It may be that individuals who are most at risk for a suicide attempt possess a combination of personality traits associated with desire and ability, exhibiting high Negative Emotionality, low Positive Emotionality, and low Constraint. In support of this conclusion, borderline personality disorder, psychopathology typified by high rates of suicidal behavior, reflects a similar conjunction of traits, at the cusp of both internalizing and externalizing psychopathology (Eaton et al., 2011).

Taken together, current research in personality and suicide indicates that there may be certain personality traits that characterize high risk for suicide, personality traits whose extreme expression may typify the link between psychopathology and suicide. Such work is of particular relevance to suicide prevention efforts. In particular, if personality traits could be used to identify clinically meaningful subgroups of individuals who are predisposed to greater suicide risk, such information could be used to tailor intervention strategies more closely to the needs of each suicidal subtype.

See Also

Depression
DSM-V
Impulsivity
Loneliness
Neuroticism, Personality Correlates of
Optimism/Positivism vs Pessimism/Negativism

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Burnout

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Introduction

It was in the 1970s when Freudenberger (1974) first used the term *burnout*. With this term, he wanted to describe the gradual emotional depletion and loss of motivation that he observed among volunteers working for aid organizations in New York. Although Freudenberger observed this phenomenon within a clinical context, after years of research, it has been shown that burnout may occur in any working context.

In the 1980s, Maslach and colleagues (1981) interviewed human services workers in California to find out how they handled stressful situations with clients. In the interviews, the workers often used the word *burnout* when explaining how they felt interacting with clients. However, they did not only show symptoms of emotional exhaustion but also reported a lack of professional competence and they endorsed a negative, callous attitude towards their clients. As a result, Maslach and her colleagues identified three core dimensions of burnout:

- Emotional exhaustion: feelings of being emotionally drained by one's contact with other people. This is the central strain dimension of burnout.
- Depersonalization/Cynicism: a negative or excessively detached response toward these people, who are the recipients of one's service or care.
- Lack of personal accomplishment: a decline in one's feelings of competence and successful achievement at work.

Nowadays, most scholars agree that exhaustion and cynicism are the core dimensions of job burnout. Personal accomplishment develops largely independent of the syndrome and is often excluded from the definition of burnout. Since burnout means that employees have lost the motivation and ability to invest effort in their work, research has confirmed that burnout is an important predictor of reduced performance, lower productivity, and reduced

client satisfaction. Moreover, burnout has a negative impact on employee well-being and psychological and physical health. It is therefore important to understand the possible causes of burnout. These causes are related not only to the characteristics of the work itself, but also to the way in which people experience their work and how they cope with difficult work situations. Therefore, the study of personality and individual differences is crucial to better understand the burnout syndrome.

Personality and Burnout

Personality characteristics are relatively stable aspects of the self that can help to explain why some individuals are more prone to experience burnout than others. Alarcon and colleagues conducted a meta-analysis in 2009 and after reviewing 114 samples they concluded that the environment is not the only predictor of burnout. They focused on the Big Five personality factors and found that all these factors were related to the different dimensions of burnout. Individuals high in emotional stability, extraversion, conscientiousness, and agreeableness were less likely to experience exhaustion, cynicism, and lack of personal accomplishment. Specifically, emotional stability was the most important predictor of exhaustion and depersonalization, whereas extraversion was the most important predictor of personal accomplishment. Finally, openness to experience was positively related only to one dimension of burnout (personal accomplishment). Beyond the Big Five, there are other personality factors that are also important to predict burnout. For example, optimism reduces the likelihood of experiencing feelings of exhaustion and to develop a negative attitude toward work (cynicism).

Therefore, regardless of the objective nature of the work environment, people tend to perceive their job favorably or unfavorably, depending on their personality. We can take as an example a specific work task: the submission of an important report. Individuals with low emotional stability may view this task as stressful and threatening, because these people have a tendency to experience unpleasant emotions such as anxiety or anger. However, individuals with high emotional stability may view the same task as challenging and motivating, because these people are usually calm and react favorably to demands. Apart from the perception of the environment as stressful or challenging, individuals may also differ in their ability to cope with job demands. Extraverts may be better able to cope with emotionally demanding situations, because they have the skills to use coping strategies such as seeking out social support and accepting help from others. Personality is indeed reliably related to burnout.

Swider and Zimmerman (2010) used meta-analytic path modeling to investigate the relationships between Five-Factor Model personality traits and job burnout. Their results were consistent with those of Alarcon, and showed that neuroticism (positive) and extraversion (negative) were the most important predictors of emotional exhaustion, whereas agreeableness was the most important predictor of depersonalization (negative). Conscientiousness and openness hardly explained any meaningful and unique variance in burnout. Furthermore, they found that job burnout partially mediated the relationships between Five Factor Model personality traits and personnel turnover and job performance, while fully mediating the relationships with absenteeism.

Job Demands and Resources

The Job Demands-Resources theory developed by Bakker and Demerouti (2014; Demerouti, Bakker, Nachreiner & Schaufeli, 2001) proposes that burnout is the result of a suboptimal work environment in which the job demands are too high, and job resources are too low. Job demands are aspects of the job that require sustained physical, emotional, or cognitive effort. Repeated confrontation with a high workload and emotionally challenging client interactions is draining and results in high levels of exhaustion. Job resources are the physical, psychological, social, or organizational aspects of the job that help to achieve work goals, reduce job demands and the associated physiological and psychological costs, or stimulate personal growth, learning, and development. Resources such as support, feedback, task variety, and autonomy can be used to deal with high job demands, and are also motivating in themselves. Employees who have access to an abundance of job resources are typically engaged in their work and have a positive, enthusiastic attitude toward work. However, when important job resources are missing, employees may develop negative attitudes toward work (cynicism).

Thus, the combination of high demands and low resources is an important predictor of burnout. This means that work environments can be designed such that the risk of burnout is limited. For example, in 2005, Bakker, Demerouti, and Euwema conducted a study among teachers who experienced job demands such as overload or work-home interference. These teachers did not experience burnout when they had access to job resources such as autonomy or social support. However, as discussed above, not only job demands and job resources interact in predicting burnout – personality also plays an important role.

Personality versus Environment

Since personality influences how employees perceive, select, and manage their work environment, it can be argued that personality factors interact with job demands and resources in predicting burnout. For example, since extravert individuals like to meet other people, they become socially competent and may be better able to deal with high emotional job demands. Their social competence will also help them to mobilize their social job resources (e.g. social support, performance feedback, coaching, recognition), which they can then use to deal with their job demands. Only a few studies have examined the interplay between personality and the work environment (i.e. job demands and resources). Bakker and his colleagues (2006) found that volunteer counselors low in neuroticism were hardly influenced by negative interactions with clients, whereas those high in neuroticism reported higher levels of exhaustion and depersonalization after negative interactions with clients.

Extravert employees may also be better able to mobilize their job resources. Because extraversion is characterized by a tendency to be self-confident and to have frequent and intense personal interactions, extraverts are more likely to craft their social resources, i.e. take the personal initiative to ask for help and feedback. Indeed, Bipp and Demerouti (2014) found that employees scoring high on approach temperament were more likely to seek job resources in their work environment such as opportunities for development and

social support. Such resources can be used to protect oneself against the impact of high job demands, and thus avoid burnout. Future research should more explicitly investigate the interplay between personality, job demands, and resources.

Future Directions in Burnout Research

Bakker and Costa (2014) have recently argued that burnout may be the result of an accumulation of job demands and strain over time, whereby employees at risk of burnout start to make mistakes and create problems that further add to the already high job demands. They refer to self-undermining – a consistent pattern of undesirable behaviors in the workplace that undermine job performance. Self-undermining may be the consequence of high levels of job strain, and be the fuel of a loss cycle of high job demands and burnout. Future research should try to measure such behaviors and investigate whether self-undermining is an important behavioral predictor of burnout.

Recent research has indicated that burnout may be a slow process of daily symptoms of exhaustion and cynicism that may fluctuate over time. Xanthopoulou and Meier (2014) argue that levels of exhaustion and cynicism may vary from day to day, depending on the daily work characteristics. Exhaustion may also be the consequence of certain performance episodes during which employees need to deal with complex and highly demanding tasks with little resources available – for example, a performance episode that consists of a long business meeting with tough negotiations with clients. It is conceivable that repeated confrontation with such performance episodes leads to an accumulation of short-term fatigue, which may eventually translate into chronic exhaustion and cynicism (i.e. burnout).

Future research may also focus on job crafting as a possible means of preventing and reducing burnout. Recent studies have produced some promising results, suggesting that employees can be trained to engage in job crafting – to proactively optimize their own job demands and resources. Job crafting improves the fit between the individual employee and his/her environment, reduces burnout, and facilitates work engagement and job performance. It would be interesting to find out whether such job crafting interventions are also effective among individuals who already suffer from high (clinical) levels of burnout. Finally, it is important to take into account the role of recovery from work-related stress. In her paper on "Strategies to Prevent Burnout," Demerouti (2015) highlights that psychological detachment, engaging in relaxing activities, or engaging in activities with family and friends are all crucial strategies that can reduce symptoms of burnout.

See Also

Hopelessness
Individual Differences in Coping with Stress
Learned Helplessness

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Religiosity and Spirituality

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Pervasiveness of Religiosity and Spirituality

The vast majority of people in the United States and around the world identify themselves as religious and/or spiritual, and many of these individuals consider these beliefs to be some of the most important that they hold. Across the world, 5.8 billion people identify with a religious group. This represents 84% of the world population. In the United States, 83% believe in God, 77% say religion is important in their life, 72% report that they attend religious services at least a few times a year, and 72% believe in heaven. While these percentages have gone down over the past several years, the percentage of people who say they often feel a deep sense of spiritual peace and well-being as well as a deep sense of wonder about the universe has risen. The phrase "spiritual but not religious" has increasingly become a way that individuals describe themselves.

Historical Treatment of Religiosity and Spirituality

It should not be surprising, then, that researchers have increasingly turned their attention to religiosity and spirituality (R/S) and the roles they may play in individuals' physical, social, and mental health.

Some of psychology's leading figures and early pioneers addressed issues of R/S. William James used his phenomenological approach to describe some of the more extreme forms of religious experience. Sigmund Freud wrote several papers on the irrational bases of religious beliefs and the neurotic influences of those beliefs on the individual. Freud's student, Carl Jung, had a much more favorable view of religion, arguing that religion fulfilled a basic human need.

For the next several decades, however, psychologists shied away from the study of R/S. Researchers in psychology believed that human behavior could be understood through psychological accounts (e.g. biology, reinforcement, unconscious influences) and that

religious accounts were unnecessary. Additionally, they wanted their up-and-coming field to be modeled after "harder" sciences like physics and not associated with "softer" fields like philosophy and religion. At the same time, religious professionals were threatened by the negative portrayals of religion by Freud and Behaviorists, among others, as well as the competition from clinical psychology that was increasingly challenging their role as counselors for individuals who needed support and guidance.

For multiple reasons, the psychological study of R/S reemerged toward the end of the twentieth century and continues to this day. First, lay people have become more interested in R/S. This extends beyond interest in their own religion to other religions, to spirituality more generally, and to the role of religion in health and well-being. Second, psychology has become more secure as a science and, consequently, less concerned that studying R/S would be viewed negatively. Third, psychology has become more interested in addressing practical questions about the needs of individuals. The role of R/S in health and well-being quickly became the most researched question in the field.

Defining Religiosity and Spirituality

As researchers have increasingly turned their attention to R/S, one of the major points of confusion and debate is how to define these basic terms. Most researchers use the terms "sacred" and "transcendent" to distinguish religious and spiritual behavior and beliefs from secular beliefs; that is, religiosity and spirituality involve a search for or belief in the divinity, higher power, or that which is beyond the merely physical human experience or material universe.

With the increasing secularization in Western culture and as individuals increasingly identify themselves as spiritual but not religious, greater distinctions are being made between the terms, religiosity and spirituality. Although both researchers and the general public tend to agree there is significant overlap between them, one common distinction is that the former is located in an institutional framework while the latter is more personal or internal. Religion consists of an organized system of beliefs, practices, and symbols and is derived from established traditions. There is less agreement on defining spirituality. Spirituality more often refers to those who are personally seeking the transcendent or sacred. In US surveys, the majority of individuals consider themselves to be both religious and spiritual, while a significant minority identify as either religious, spiritual, or neither.

Measuring Religiosity and Spirituality

There is no "measure" of religiosity or spirituality. There are, however, measures of specific R/S behaviors (e.g. frequency of attending religious services and how often one prays), feelings (e.g. fear, awe, guilt, and disgust), and cognitions (e.g. belief in deity, belief in afterlife, and values). Many of these measures rely on self-report and can be determined by answers to simple multiple-choice questions asking individuals about their religious membership, affiliation, attendance, experiences, knowledge, etc.

Increasingly, scales have been developed to measure one or more dimensions of R/S. Over a hundred such scales have been used in research and subsequent studies have attempted to reduce these measures to a handful of categories. One of the earliest and still most frequently used measure of R/S is the religious orientation scale. Individuals who score high on Intrinsic Orientation consider their faith to be their master motive in life. They incorporate their religious teachings and values into their lives, and are less likely to compromise them; these individuals "live" their faith. A sample Intrinsic Orientation item is: "I try hard to carry my religion over into all my other dealings in life."

Individuals who score high on Extrinsic Orientation are more likely to "use" their religion, their involvement in religion is motivated by nonreligious factors, and religious teachings and values are only adopted to the extent they suit the person's own purposes. A sample Extrinsic Orientation item is: "Occasionally I find it necessary to compromise my religious beliefs in order to protect my social and economic well-being."

Individuals who score high on the religion as quest orientation have an open-ended and open-minded approach to R/S matters and they are more interested in the search for and struggle with existential questions than they are in arriving at clear answers to R/S issues. A sample Religion as Quest item is: "Questions are far more central to my religious experience than are answers."

Religiosity, Spirituality, and Health

Research shows that the great majority of individuals in the United States and around the world look to religion and spirituality to help them cope with their mental or physical concerns. And every major religion provides beliefs and rituals to help individuals deal with the many stresses and challenges of life. R/S involvement can facilitate coping in numerous ways: providing a positive worldview, meaning and purpose, hope, empowerment, role models for suffering, forgiveness, guidance for decision-making, and social support.

Whether R/S involvement helps or hurts an individual's efforts to deal with stress or trauma may depend on the type of religious coping the individual employs. Three religious approaches to coping have been suggested. In self-directing coping, individuals rely on their God-given resources and free will to solve the problem on their own; in deferring coping, people passively defer the responsibility for problem solving to God; and in collaborative coping, people work together with God as partners in the problem-solving process. The collaborative approach to coping is generally considered to be the most positive style and the one to produce the most positive outcomes of negative events.

Individuals report that they use R/S involvement to help them cope with trauma, stress, and life difficulties. The question remains whether it can be empirically demonstrated that R/S involvement is associated with mental and physical health. Hundreds of studies have been conducted over the past few decades exploring the possible effects of R/S activities and involvement on mental and physical health. Because of the increased quantity and quality of these studies, researchers no longer ask whether there is a relationship between R/S involvement and health, but rather, look at more specific questions such as what aspects of health (mental/physical) are most likely to be affected by R/S involvement and what aspects of R/S involvement are responsible for its effects on health.

There are many ways to conceptualize physical health, but certainly one important outcome measure is life expectancy. Over a hundred studies have examined the relationship between R/S involvement and mortality and the majority of studies have found that R/S predicted greater longevity. However, the R/S effect is not the same across all groups of people and all types of R/S involvement. Specifically, it is religious attendance (more than private R/S activity or beliefs) that is most associated with longevity; and the R/S effect is greater in women those in poor health, those with minority status, and those with low educational attainment. In putting the size of the R/S effect on longevity in the context of standard treatments used in medicine today, it is similar in magnitude to the effect that exercise-based cardiac rehabilitation or cholesterol-lowering drugs have on reduction in mortality.

There is strong research support, then, for concluding that R/S involvement is associated with longer life expectancy. There are likely three avenues through which R/S involvement exerts this effect: psychological, social, and behavioral. Regarding psychological mediators, greater R/S involvement is associated with a number of positive psychological traits such as forgiveness, volunteering, gratefulness, optimism, hope, meaning and purpose, self-esteem, and sense of control. R/S involvement is also negatively correlated with several negative psychological traits such as loneliness, depression, and anxiety. Regarding social mediators, individuals with greater R/S involvement report more social support and greater marital stability. Finally, regarding behavioral mediators, individuals with higher R/S involvement are more likely to exercise, visit dentists, volunteer, wear seat belts, and eat healthier; they are also less likely to smoke, drink, take recreational drugs, and engage in accident-prone behavior.

See Also

Religiosity

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Personality and Positive Psychology

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Personality

Personality refers to an individual's characteristic ways of thinking, feeling, and behaving. The most widely used conceptualization of personality is the five-factor trait model, also known as the Big Five that comprises five underlying personality dimensions (McCrae & Costa, 2003). These include extraversion, which refers to sociability, positive emotionality, and energy; neuroticism, which concerns emotional instability, and distress in response to stressors; agreeableness, which implies trustfulness, altruism, and cooperativeness; conscientiousness, which reflects purposeful striving toward goals, persistence, self-control, and planning; and openness to experience, which involves curiosity, flexibility, appreciation of personal emotion, and imaginativeness. These five personality dimensions are key determinants of interpersonal and intrapersonal characteristics and behavior, including a variety of positive psychological characteristics.

Positive Psychology and Positive Psychological Characteristics

The positive psychology approach posits that positive characteristics are more than the absence of negative characteristics and independently contribute to a variety of positive life outcomes. Several dispositional positive psychological characteristics are linked to the Big Five personality factors. Research has found that individuals with more outgoing and positive personalities generally experience and report greater positive psychological characteristics compared with individuals endorsing more negative personality dimensions. We provide an overview of a range of positive psychological characteristics associated with the Big Five personality in the following sections.

The Big Five and Well-Being

Research on well-being illustrates two different traditions of well-being: hedonic and eudaimonic. Subjective well-being and psychological well-being are phrases frequently used as being synonymous with hedonic and eudaimonic well-being indices, respectively (Ryan & Deci, 2001). Subjective well-being stems from the experience of high positive affect, low negative affect, and high satisfaction with life, that is, judgments about the good or bad events in life. Meta-analytic studies have found that extraversion, conscientiousness, and openness to experience were related to greater positive affect; whereas neuroticism was the strongest predictor of negative affect and less positive affect (Steel, Schmidt, & Shultz, 2008).

On the other hand, eudaimonia conceptualizes psychological well-being as occurring when a person's life activities are congruent with his/her values and the individual is holistically or fully engaged. Six distinct aspects of psychological well-being are autonomy, personal growth, purpose in life, environmental mastery, positive relatedness, and self-acceptance. Research has shown that extraversion and agreeableness were associated with greater overall psychological well-being, whereas neuroticism was related to lower levels of overall psychological well-being (Koko, Tolvanen, & Pulkkinen, 2013).

The Big Five and Positive Traits Described as the "HERO" Within

Four positive psychological characteristics of hope, efficacy, resilience, and optimism (HERO) make up the psychological capital. Hope encompasses the belief in one's ability to achieve personal goals and consists of two related but distinct cognitive components of pathways (planning to meet goals) and agency (goal-directed action). It is conceptualized and assessed as both a dispositonal trait and a state. Research has shown that extraversion, conscientiousness, agreeableness, and openness traits were related to greater dispositional hope, and neuroticism was negatively associated with dispositional hope (Hutz, Midgett, Pacico, Bastianello, & Zanon, 2014).

Efficacy is the belief that one is competent in dealing with life challenges. Research has shown that extraversion, agreeableness, conscientiousness, and openness traits were associated with greater self-efficacy; and neuroticism was related to less self-efficacy (Wang et al., 2014).

Resilience is the ability to bounce back from adversity and stressful or challenging experiences. Research has shown extraversion, agreeableness, conscientiousness, and openness to experience were related to greater resilience; neuroticism was negatively associated with resilience (Fayombo, 2010).

Optimism is a generalized positive outlook and involves individuals having favorable expectations for their future, and is conceptualized and measured as a trait and state that can be learned and developed. Significant positive relationships between extraversion, conscientiousness, agreeableness, and openness traits and dispositional hope and negative association of neuroticism with dispositional hope have been empirically demonstrated (Hutz et al., 2014).

The Big Five and Trait Emotional Intelligence

Emotional intelligence is an adaptive emotional functioning and consists of interrelated emotional competencies related to perception, understanding, utilizing, and managing emotions in the self and others. Emotional intelligence is defined and assessed both as an ability and as a trait or typical functioning. Research has shown personality factors to be associated with trait emotional intelligence, with neuroticism as the strongest correlate of low trait emotional intelligence, followed by extraversion, conscientiousness, agreeableness, and openness as correlates of high trait emotional intelligence (Petrides, Vernon, Schermer, Lighart, Boomsma, & Veselka, 2010).

The Big Five and Gratitude

Dispositional gratitude consists of noticing and appreciating the positive in life and being thankful for these positive aspects of life. Overall, gratitude was positively correlated with certain facets from the extraversion, openness, agreeableness, and conscientiousness domains, and negatively correlated with certain neuroticism facets (Wood, Joseph, & Maltby, 2009).

The Big Five and Self-Compassion

Self-compassion entails an accepting stance toward oneself and those aspects of one's life that are disliked and criticized. Greater self-compassion is related to more agreeableness, extraversion and conscientiousness, and less neuroticism (Neff, Rude, & Kirkpatrick, 2007).

The Big Five and Grit

Grit is an individual difference characteristic that consists of focus and perseverance toward goals and was found to be associated with conscientiousness (Rimfeld, Kovas, Dale, & Plomin, 2016).

The Big Five and Mindfulness

Mindfulness consists of a nonjudgmental focus on the present and can be a trait as well as state. Research suggests neuroticism and conscientiousness as the two strongest correlates of trait mindfulness, and mindfulness practice to be positively related to extraversion and openness, and negatively associated with neuroticism (Giluk, 2009; van den Hurk et al., 2011).

The Big Five and Character Strengths

Character strengths are clusters of personality features that are morally valued and contribute to good character. These trait-like strengths can be divided into categories of wisdom, courage, humanity, justice, temperance and transcendence. Macdonald, Bore, & Munro (2008)

found that an overall higher level of character strengths in these categories was associated with more agreeableness, conscientiousness, extroversion and openness, and less neuroticism.

The Big Five and Positive Social Influence

Social scientists are also interested in investigating the ways of positively influencing people's attitudes and actions. Cialdini (2001) proposed six principles of persuasion of authority, consensus, commitment, scarcity, liking, and reciprocity. The first principle of *authority* is considered a form of social influence and posits that people are inclined to follow suggestions and recommendations from a person in authority. The principle of consensus or social proof is asserted to operate when individuals observe multiple others displaying the same behavior or belief, which leads that person to behave similarly. The principle of commitment refers to the notion that people strive to maintain consistent beliefs and act in accordance with those beliefs. The principle of scarcity increases the perceived value of products and opportunities. Liking strategy asserts that people tend to say "yes" to people they like, thus, when a request is made by a person we like, we are much more inclined to act accordingly. Finally, the principle of reciprocity indicates that people tend to be inclined to return a favor and go to a great deal of effort to do so. The possibility of developing positive persuasive messages takes into account the target person(s) and how they behave.

Alkis and Temizel (2015) found that people who are more agreeable tend to be persuaded by people they like, whereas people who are more conscientiousness tend to be persuaded by people in authority. Agreeableness tends to be the most susceptible personality trait to persuasion strategies, whereas openness is the least susceptible personality trait to persuasion strategies. Extraversion and neuroticism personality traits tend to be susceptible to scarcity strategy; and, except openness, all personality traits tend to be susceptible to reciprocation strategy. Therefore, knowing specific personality profiles can help in personalization of persuasion strategies for maximum effectiveness.

Overall Patterns between the Big Five Personality Traits and Positive Psychology Characteristics

Although there are some differences in the relationship of the Big Five traits with specific positive psychology characteristics, in general a Big Five trait pattern of high extraversion, high agreeableness, high conscientiousness, high openness, and low neuroticism describes the connections between the Big Five and positive functioning. This constellation of the Big Five and positive psychology characteristics might underpin the adaptive and growth functioning.

See Also

Emotional Intelligence
Personality and Health
Personality and Well-Being

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Hope

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Hope, the belief that what is desired can be attained, is a defining characteristic of the human psyche. One of the oldest accounts of hope is the Greek myth of Pandora. According to legend, Zeus sent Pandora to Earth to exact revenge on mortals for receiving fire from Prometheus. He gave her a dowry jar, instructing her never to open it. Unable to resist temptation, Pandora opened the jar and unwittingly unleashed suffering into the world. She rushed to close the lid, not noticing that hope was stuck inside. It is unclear from the myth if hope was intended to be another scourge or a gift.

Historically, opinions about hope have been mixed. Plato, Bacon, and Nietzsche expressed decidedly negative views of hope, considering it a delusion that merely protracts human suffering. In contrast, writers such as Martin Luther and Emily Dickinson lauded hope as the engine that drives human striving, particularly when life is difficult.

In the twentieth century, scholars became interested in hope. Many physicians argued that positive psychological experiences, including hope, affected the body's healing process and therefore merited scientific investigation. Initially, there were differing conceptualizations of hope, with some scholars defining it as an emotion and others as a positive expectation. By the 1950s, there was general consensus that hope involved the expectation that goals could be achieved in the future. This conceptualization was consistent with emerging psychological theories of human motivation, including expectancy-value theory.

In the 1970s, psychologist C. R. Snyder became interested in hope via his studies on excuse-making. Snyder's research elucidated the process by which people distanced themselves from their failures. During post-experiment conversations, however, participants commented that making excuses was only part of how they navigated the world; they also strived to move closer to things they wanted. This sparked Snyder's interest in how people pursued goals, and in the 1980s he took a sabbatical to study this process. Snyder interviewed people about their goal-related thoughts. People consistently mentioned two interacting processes: thinking of routes to reach their goals and motivating themselves to use those routes.

Based on these conversations, Snyder defined hope as the perceived ability to achieve desired goals. As detailed in his book, *The Psychology of Hope* (Snyder, 1994), this conceptualization comprises three cognitive elements: goals, pathways, and agency. *Goals* are desired future states that serve as mental targets to guide behavior. They can manifest as self-talk or mental images. Goals vary along several dimensions, including: time-frame, importance, difficulty, and specificity. Goals can be framed positively (e.g. "I want to go to law school") or negatively (e.g. "I don't want to get sick"). For hope to be relevant, Snyder posited that goals had to have an intermediate level of uncertainty. Goals certain to be achieved require no hope; whereas, impossible goals are not likely to influence behavior.

Pathways is the perceived ability to generate strategies or routes connecting the present to a desired future goal. The ability to create multiple routes is important when barriers are encountered. *Agency* is the perceived ability to motivate oneself to use pathways to reach a goal. It is often manifested as positive self-talk (e.g. "I can do this!"). Agency is important when people experience setbacks because it enables them to generate the motivation to use an alternative pathway to their goal.

During a goal pursuit, pathways thinking gives rise to greater agency, which leads to more pathways thinking. This transactional thought process can create an "upward spiral," wherein someone beginning a goal-pursuit experiences some success, leading to increased thoughts about other routes to success and the ability to motivate oneself to use those routes. Although positively correlated, pathways and agency are separate processes, and it is possible for people to be high in one and low in the other.

Snyder's model of hope emphasizes thoughts rather than emotions. Emotions are merely consequences of the goal-pursuit process. Experiencing setbacks leads to negative emotions (e.g. frustration); whereas, making progress leads to positive emotions (e.g. joy). Hope is considered a learned trait. Pathways thinking develops as an infant begins to make associations between co-occurring events. Around 12 months of age, the emerging sense of self (i.e. psychological birth) marks the beginning of agency. During this time, children begin to understand they can influence the world around them, and early goal pursuits establish the foundation of later hope. If childhood is characterized by goal accomplishments and overcoming obstacles, then a hopeful mindset develops. In contrast, if childhood is marked by repeated failures or the lack of attainable goals, then a lower-hope baseline is established.

A criticism of Snyder's hope theory is that it is conceptually and empirically similar to another personality trait: optimism. Hope and optimism both involve positive expectations about the future. However, an important distinction is that hope focuses on what a person can do to achieve desired goals. In contrast, optimism is a general expectation that good things will happen, regardless of one's control over them. A student can hope to be valedictorian of her class, but can only be optimistic that it won't rain on her graduation day.

When studied together, hope and optimism have been shown to be empirically distinct and predict different outcomes. Hope predicts controllable processes useful for working toward personal goals (e.g. tolerating pain); whereas, optimism does not. Similarly, hope predicts goal-focused achievement such as academic performance; whereas, optimism does not. Hope and optimism also differentially relate to aspects of psychological

well-being. Hope is more strongly associated with a sense of control, purpose, and growth (i.e. eudaimonic well-being) than optimism. In contrast, optimism is more strongly associated with the presence of positive emotions and the absence of negative emotions (i.e. hedonic well-being) than hope.

Measuring Hope

The most widely used measure of hope is the adult Trait Hope Scale (Snyder et al., 1991). This 12-item instrument measures pathways (e.g. "I can think of many ways to get out of a jam") and agency (e.g. "I energetically pursue my goals"). Higher scores indicate greater hope. Research has shown it to have good internal consistency and test-retest reliability. Consistent with Snyder's theory, factor-analytic studies have shown the Trait Hope Scale consists of two correlated factors (i.e. pathways and agency) driven by an overarching hope factor, and that this structure is the same in women and men.

The Children's Hope Scale is a measure for children ages 8 to 16 years. It consists of three pathways and three agency items. The State Hope Scale is a six-item measure to assess people's hopeful thinking "right now." Research has shown both scales to have good internal reliability, a factor structure similar to the Trait Hope Scale, as well as convergent and discriminant validity.

Hope occurs at various levels of specificity, and there are instruments to measure more specific hope. The Domain-Specific Hope Scale measures hope in six life domains: social relationships, romantic relationships, family life, academics, work, and leisure activities. The Goal-Specific Hope Scale assesses hope for a particular goal and has been shown to predict goal progress above and beyond trait hope levels.

Research on Hope

Hope consistently predicts goal-directed performance and overall well-being. Higher hope predicts better student performance at all levels of education, from primary to post-graduate, even after controlling for ability and previous achievement. A six-year longitudinal study published in the *Journal of Educational Psychology* (Snyder et al., 2002) found that student hope, measured at the start of the first semester of college, predicted higher cumulative grade point averages, lower drop-out rates, and higher graduation rates, even after controlling for intelligence, high school grade point averages, and college entrance exam scores. In a study of Division I track athletes, higher hope predicted better athletic performance, even after controlling for innate athletic ability.

Hope is a strong predictor of psychological well-being. Greater hope is associated with more positive thoughts, greater positive affect, greater self-worth, fewer negative thoughts, and fewer negative emotional experiences, including lower levels of depression and anxiety. A longitudinal study found that initial levels of hope predicted subsequent levels of anxiety and depression in college students, but that anxiety and depression did not predict subsequent hope. This suggests that hope is not simply an artifact of feeling better, but instead is a driver of psychological well-being.

Hope appears to have salubrious influences on physical health as well. Higher-hope women have greater knowledge about cancer and stronger intentions to engage in screening and prevention efforts than their lower-hope counterparts, even when controlling for intelligence and previous experience with cancer. Similarly, higher-hope primary care patients engage in more exercise and have healthier diets than their lower-hope peers. Even after succumbing to physical illness, hope confers benefits. Among survivors of childhood cancers, hope predicts greater post-traumatic growth and less negative rumination. Higher hope predicts more adaptive coping and faster recovery from burns, spinal cord injuries, arthritis, fibromyalgia, multiple sclerosis, and blindness.

Applications of Hope Theory

Given the positive associations between hope and life outcomes, interventions have been developed to increase hopeful thinking. A newly developed classroom intervention for college athletes consists of goal-setting, small group activities, journaling, and active learning demonstrations. Early research found this intervention increased trait hope, confidence, self-esteem, and coach-rated athletic performance. Other classroom interventions have been shown to increase hope, purpose in life, self-worth, vocational calling, specific goal progress, and academic achievement among middle-school and college students. Hope-based treatments among community populations have shown promise in reducing anxiety, depression, and hopelessness, while improving hope, social functioning, self-esteem, and meaning in life.

Future Directions

Hope is a useful construct for understanding achievement and well-being in a variety of situations, but several issues merit further investigation. For example, there may be circumstances where hope is maladaptive. One provocative possibility is that hope may increase suffering among people with terminal illnesses, particularly cancer. There is accumulating evidence that the dogged pursuit of survival or cure among advanced cancer patients is associated with worse psychological outcomes for patients and their families without any meaningful improvement in survival. Further research is needed to understand if "false hope" is involved in this process.

As research on hope expands, it is important to understand if hope functions similarly in different groups and cultures. To date, there is no evidence of racial or gender differences in the structure or mean levels of hope. However, there are group differences in achievement and well-being. It remains unclear how groups with similar levels of hope can have such disparate outcomes. One possibility is that hope has different influences on coping across groups. For example, research suggests that hope weakens the relationship between depressive symptoms and suicidality among Caucasian and Hispanic people, but not among African Americans.

Another promising area for future work is the application of hope theory to intergroup conflict. To the extent that such conflict is a function of different groups pursuing similar

goals, research on hope may provide insight into how to reduce goal-related frustration and increase achievement and well-being.

See Also

Coping
Optimism/Pessimism Carver and Scheier Theory
Personality and Positive Psychology
Self-regulation

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Forgiveness

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Forgiveness within psychotherapy is a new and empirically verified form of treatment for clients who present with unhealthy emotions and moods resulting from unjust treatment by others. The focus in this newly emerging area is on the client forgiving others rather than on seeking forgiveness from or apologizing to others. Forgiveness therapy is a way of reducing resentment and related negative psychological conditions such as anxiety, depression, and low self-esteem. Although it is common in publications for authors to state that there is no agreed-upon definition of forgiveness, there is an emerging consensus in psychology that the definition of forgiveness includes these three themes: first, the client experienced unfair treatment from one or more people. The focus is interpersonal and does not include psychological injury from, for example, natural disasters such as hurricanes or earthquakes. Second, the forgiver makes a commitment to reduce resentment specifically toward the one who acted unjustly. This can take time and often is a struggle to do so. Third, over time, the forgiver works on offering goodness of some kind toward the injuring person. This third component of the definition is added because forgiveness is seen as a virtue, a response of goodness toward the injuring person and this can take the form of respect, compassion, and even love toward the injuring person. In forgiveness therapy, a client need not reach the pinnacle of forgiveness such as offering unconditional love toward the one who injures. Simply making progress toward reducing resentment and offering small amounts of goodness can be therapeutically beneficial.

Forgiving others often starts as a cognitive insight that one can not only strive for fairness when hurt by others but also offer mercy on another person or going beyond justice. Mercy includes this sense of compassion on the other, not because of what he or she did, but in spite of this.

Some clients make the mistake of thinking that if they forgive, then they cannot seek justice. They see these as mutually exclusive. This is a mistake that the helping professional should gently correct. Otherwise, a client might conclude that upon forgiving a person who is continuously abusive, then that client has an obligation to enter once again into the hurtful relationship. To forgive and to reconcile are not the same. Reconciliation is a

negotiation strategy in which two or more people come together again in mutual trust. One can forgive and not reconcile if the other remains a danger to the one who forgives. The offer of forgiveness can be unconditional, offered whether or not the other person feels remorse or apologizes. Reconciliation, on the other hand, is always conditional on trust being demonstrated and restored. To forgive is not to condone or excuse the other's unjust behavior. Instead, the forgiver acknowledges the wrongdoing of the other and decides to offer goodness in the form of mercy nonetheless.

Forgiveness is more than reducing resentment toward the other person(s). One can cease resenting the other by condemning that person, thinking that he or she is not worthy of the effort to offer goodness. In trying to understand forgiveness, some people confuse what forgiveness *is* (a response of reduced resentment and the offer of goodness toward those who acted unjustly) with the psychotherapeutic *outcomes* of the forgiveness process (improved client health, which can include both psychological and physical aspects). The paradox of forgiveness, shown through scientific studies, is that as this goodness is extended to the other(s), it is the forgiver who experiences considerable psychological benefits, which can last after psychotherapy ends.

The first empirically based article on person-to-person forgiving was published in the *Journal of Adolescence* in 1989. The focus was an extension of the work on the psychology of justice pioneered by Jean Piaget in the 1930s and Lawrence Kohlberg in the late 1960s through the mid-1980s. Basing this new forgiveness work on these pioneering efforts in developmental psychology, the authors Enright, Santos, and Al-Mabuk focused on the increasing cognitive complexity of how children, adolescents, and adults think about forgiveness, particularly what conditions need to be met before the participant will offer forgiveness. Children confused forgiveness with revenge (If I can hit the one who hit me, then I can forgive) or compensation (If the other gives back what is taken, then I can forgive), thus not only distorting forgiveness but rendering it conditional on others' responses to the forgiver. Only in adulthood was there a clear indication that to forgive is a free choice that could be offered regardless of the offending person's response or lack of response. That choice includes the beneficence of compassion for the other as an end in and of itself. Helping professionals need to explore clients' thinking about what forgiveness is and is not prior to commencing forgiveness therapy because misconceptions are quite common especially in people who have not given much thought to the topic of forgiveness.

Forgiveness therapy (FT) is the deliberate attempt on the client's part to reduce resentment and offer goodness to the person(s) who acted unjustly toward the client. The first empirical study of FT was done by Hebl and Enright in 1993 in which elderly women forgave family members for a variety of injustices. There are at least seven assumptions of forgiveness therapy: (1) in contrast to other forms of therapy that refrain from value judgements, FT assumes that there is right and wrong and the client upon careful reflection can label another's actions as morally wrong or unjust; (2) unlike traditional forms of therapy, FT's focus is more on the offending other than it is on the client's internal emotional reactions and behaviors; (3) FT assumes that a merciful focus on the offending other person can be therapeutically beneficial to the clients because in the act of merciful giving is the insight that one is stronger than at first thought; (4) A client need not become a perfect forgiver to derive psychological benefit. In fact, in research with incest survivors by Freedman and Enright, at the end of treatment, the participants reached

only an average degree of forgiving the offending person, yet went from clinically depressed to nondepressed; (5) FT as a process takes time and should not be rushed; (6) FT can reduce and even eliminate unhealthy anger in the long term. This is hypothesized because FT focuses on the *cause* of emotional disruption (in the case of FT, unjust treatment by others) and not just on the effects (the presenting symptoms). By addressing how the client responds to the cause (and particularly to the one who generated that cause) through FT, the symptoms are reduced; (7) even when unhealthy anger is reduced or eliminated, the client still may feel angry from time to time. This is normal and he or she should not be overly concerned as long as the client now is in control of the anger rather than the toxic anger controlling him or her.

At present, there are two FT models that have considerable empirical support, one by Enright and one by Worthington. Common to these approaches are: (1) identifying the person and the event(s) of injustice; (2) examining how the injustice has led to psychological compromise in the client (so that he or she can work on ameliorating the symptoms); (3) knowing what forgiveness is and is not; (4) working toward understanding the offender(s) by taking larger perspectives beyond the unjust even. This can include seeing the offending person's weaknesses or confusions, not to excuse but to better understand him or her; (5) cultivating empathy and/or compassion toward the offending person; and (6) being aware of positive change in the self and persevering in the process of forgiveness over time.

A key component to FT is cognitive, specifically to help the client understand the inherent (built-in) worth of all people, which also includes those who offend others. This leads to the conclusion in clients that even those who act unjustly toward the client have inherent worth. These insights can take weeks or months to develop in clients. A further development in FT is clients concluding that they, too, possess inherent worth. It is at this point in psychotherapy that clients begin to improve in their psychological health, including enhanced self-esteem.

Self-forgiveness is a process that many clients request. Self-forgiveness can follow the same process of FT toward offending others with one important addition: the one who is self-forgiving should consider going to those who were offended by the client's actions and seek forgiveness from them and make amends where appropriate. Self-forgiveness is described in detail in the book, *8 Keys to Forgiveness*.

A meta-analysis of 54 empirical studies of FT, specifically focused on the Enright and Worthington FT approaches, reported statistically significant improvements in forgiveness and hope and significant decreases in anxiety and depression for clients who were randomly assigned to FT compared to those assigned to either no-contact or active control groups. The longer the duration of FT, the better the psychological outcomes for the clients. Another meta-analysis done in 2004 concluded that one-on-one individual FT produces stronger results than group FT. Follow-up analyses (after treatment has ended) show that clients who have engaged in FT tend to maintain the improvements in psychological health.

As a way to introduce forgiveness to children and adolescents, forgiveness education has been developed by the Enright research group. Curriculum guides for teachers who serve students from age 4 through age 18 have been devised. The gist of these guides, for teachers, social workers, and school counselors, is to aid children in their developmental understanding and practice of forgiveness through picture books and novels for youth. As the students see story characters experiencing injustice and then forgiving, the students then

have models that help them to explore forgiveness in nonthreatening situations. For example, for 6-year-olds, the students are introduced to the Dr. Seuss story, *The Sneetches*, in which a community begins to exercise feelings of superiority because of the number of stars that they wear on their shirts. The point of the story is to show that people should not be judged by status but instead by their shared inherent worth as persons. This theme can be extended educationally to the idea that even those who act unfairly have inherent worth. Research shows that as children are introduced to forgiveness for even one hour per week for about 12 weeks, then statistically significant reductions in anger and increases in academic achievement can occur. These programs have been researched in Belfast, Northern Ireland, a central-city in the United States, and Seoul, Korea.

See Also

Compassion
Empathy, Personality Correlates
Guilt
Meaning and Life

Further Reading

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Gratitude

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Gratitude is the quality of being thankful. Gratitude can also be described as a feeling of appreciation or thanks, or an expression given in response to kindness, blessing, or fortune. The term "gratitude" traces its origins back to the Latin word *gratus,* the root of which (*grat-*) means pleasing or thankful.

One of the leading researchers on gratitude, Richard Emmons, posits that gratitude has two key components – the personal and the societal. As a personal practice, gratitude may simultaneously lead to both individual, personal health benefits, and a greater sense of social belonging. Gratitude is framed by those who study it as both an internal affirmation of goodness as well as a recognition of external things that offer goodness and happiness.

Historically considered the ultimate public virtue in the time of Rome, an elusive emotion by philosophers, and an ecclesiastical imperative by countless theologians, discourse on gratitude within the scientific community continues to evolve rapidly. The dimensions and implications of gratitude on health and well-being, while personally meaningful for many as lived experiences, are the topics of empirical examination in the fields of psychological, health, and social sciences. Scholarship on gratitude has expanded exponentially in recent years as part of the burgeoning positive psychology movement that emerged at the turn of the twenty-first century. In the wake of the internet/technological boom that paradoxically led to both greater access to social connectivity and greater feelings of disconnect, depression, and social loneliness, the scientific community has reinterpreted gratitude to better fit an empirical framework by expanding the definition beyond a general feeling of thankfulness to an operationalized definition of deep appreciation that leads to long-lasting positive effects. Adam Smith penned one of the first publications pertaining to gratitude in his 1759 philosophical manuscript *The Theory of Moral Sentiments*. Some of the first scientific examinations of gratitude followed when sociologist Georg Simmel published *Soziologie* in 1908, and 109 years after that publication, a search on a popular scholarly web platform for titles containing the term *gratitude* now yields over 500.

Given that gratitude for so long was viewed simply as a virtue to uphold, inchoate methodological approaches to the topic, first began as simple meditations on morality. Modern

researchers have built on this foundation, taking care to note that gratitude is a complex topic to study: it defies simple classification, can be conceptualized in a multitude of ways, and when studied in the context of well-being, can often lead researchers to wonder if the two factors are merely associated or truly influenced by the other. Social science research on gratitude often takes the form of prospective observational studies and experimental cohort studies; most of the data is based on interviews or self-reported participant responses. Nationwide longitudinal surveys, cross-sectional, and retrospective cohort studies have each been utilized to study gratitude as well, leading to a robust collection of modern scientific literature on the topic. Several different cohorts, ranging from chronically ill elderly Americans to Chinese college students experiencing suicidality, have been studied in the research completed on gratitude. Though these research populations may be seemingly disparate, it is important to note that strikingly similar trends have emerged from the research. The most salient of these common themes is that the overall positive impact that gratitude has on psychological, physical, and social health and well-being.

Psychologically, gratitude has been shown to have a positive impact on one's sense of mental and emotional well-being. Across studies, scholars have shown that dispositional gratitude is related to decreased levels of anxiety, fewer frequent episodes of depression, and quicker recovery from said depression, and lower levels of loneliness. As an example of the scholarship, when Emmons and McCullough (2003) conducted a study of adults with congenital or adult-onset neuromuscular disease, they found that individuals in the daily gratitude practice experimental group experienced increased positive affect and a reduced negative affect. Benefits of the improved affect were even apparent to the participants' spouses. Though this is only one study, the scientific literature as a whole indicates that gratitude seems to positively impact a sense of direct social support, influence prosocial behavior, and fortify participants against negative emotions. Furthermore, researchers have found that gratitude itself serves as a strong protective factor against negative affectivity and behavior. Scholars have identified gratitude as a vital component of the resilience necessary to combat emotional distress incurred by financial strains, PTSD, addiction, and suicidal ideation. This research has implications for clinical interventions involving gratitude and its impact on the mental and emotional well-being of those experiencing psychological adversity.

Within the health sciences, increasing data reveal that positive psychological attributes may play a critical role in cardiac health and recovery from illness. Just as gratitude has been shown to be a positive contributor to greater psychological health, dispositional gratitude may also predict better self-reported physical health as well. In the scientific literature, examples abound of studies in which participants who were directed or prompted to practice gratitude reported benefits ranging from fewer symptoms of physical ailment to improved amount and quality of sleep to greater weekly time spent exercising. Additionally, incorporating gratitude as a component of substance abuse recovery may lead to the development of adaptive coping strategies and a greater likelihood of maintaining sobriety.

Social scientists studying gratitude focus on gratitude's impact on the wider social world. Georg Simmel, the first sociologist known to study gratitude, believed that gratitude was so imperative to social cohesion that the very fabric of society would be torn apart if gratitude were eliminated from the vocabulary of human interactions. Simmel's work goes on to assert that the equal exchange of expressing gratefulness to one another is what holds

together all of social interactions. Given this, it is ironic that empirical examinations of gratitude are scarce in the social science disciplines (with the exception being the field of psychology where an entire volume on the psychology of gratitude was recently published (see Further Reading)). The idea of an "economy of gratitude," developed by sociologist Arlie Russell Hochschild in her 1989 examination of late-twentieth-century working mothers, refers to the process of expressing gratitude as a necessary component of maintaining successful relationships. This particular framework for examining gratitude in social interactions has become a concept prolifically referenced by researchers in multiple disciplines studying emotional labor. The number of sociological studies of gratitude published after the 1980s though is sparse, and when gratitude is examined sociologically it is typically in the context of finances and economics: how gratitude works within the schema of tipping in the service industry, donating charitably, and maintaining relationships in customer marketing. Political scientists of the 1920s to now have also written sparsely on gratitude's role in political governance. When it is mentioned, gratitude is often treated as a virtue to be distrusted, one that could give way to corruption, bribery, favors, or even revenge amongst public servants. Overt displays of gratitude are frequently treated with suspicion or wariness within the system of governance.

Social structures that encourage public acknowledgment of gratitude range from the national holiday of Thanksgiving in the United States to institutional religious proclamations of thanks and praise. In fact, gratitude as a practice is extolled by each of the world's main religious traditions. Examinations of the link between gratitude and religious participation reveal that people who often attend church, frequently read the Bible, and are otherwise heavily involved in religion tend to experience more feelings of gratitude, exhibit more grateful dispositions, and self-report more motivation to express appreciation than those less dedicated to their religious practices. This trend seems to hold true across the life-span. In one particular longitudinal examination of older adults in the United States conducted by Neal Krause in 2009, more frequent church attendance seemed to strengthen the belief that God would intervene during difficult times; this in turn was found to lead to positive changes in gratitude over time. Further, gratitude seemed to be protective against the emotional duress that often accompanies chronic financial strain.

Gratitude has held the attentions of many philosophers and theologians, from Cicero to modern Christian Biblical commentators. Although gratitude was first studied exclusively in philosophical and theological contexts, other disciplines now contribute their perspectives to a dynamic discussion on the topic. Anthropologists and biologists have weighed in to discuss the historical origins and physiological implications of practicing gratitude. Economists often examine gratitude through the scope of behavioral economics, seeking to understand the ways in which a psychological posture of gratefulness may impact financial decision-making strategies. In the educational sector, researchers have commented on the positive effects of having students engage in practices of gratitude within the classroom. Even scholars of literature have examined gratitude as it is expressed in written works, from classical Greek letters to modern textbooks. Across disciplines, scholars currently studying gratitude emphasize the need for more empirical studies of the subject. The collection of empirical research on gratitude has certainly been growing, but still remains meager in comparison to the historical writings on gratitude as a purely moral, emotional subject matter. Positive psychologists, currently the most prolific purveyors of gratitude

research, lead the call for more vigorous, comprehensive studies on gratitude not only in their own field but in the realms of clinical psychology, cultural anthropology, sociology, biology, and others.

Gratitude can lead to avoiding disillusionment as well as a greater contextualization of material matters. Intentionally practicing gratitude has been shown to offer greater perspective and contribute to leading a meaningful life. Researchers Emmons and Shelton (2002) maintain that gratitude serves as a "source of human strength, and an integral element in ... the flourishing of families, communities," and individuals in multiple ways (p. 468). It may not be surprising, given the value of gratitude, that much popular discourse surrounds gratitude in American culture. From religious and cultural traditions to more modern self-help books and mindfulness exercises, as well as its noted rising popularity as a social media practice, people seem to intuitively recognize the value of gratitude. Fortunately, scholars are now intentionally measuring the psychological and social benefits of gratitude which may result in even greater numbers of people harnessing its benefits.

See Also

Personality and Well-Being
Self-Healing vs. Disease-Prone Personalities

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Personality and Volunteerism

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Prosocial action takes many forms, all of which benefit individuals (recipients and helpers), and can have broad and positive social impacts. For instance, people drive their friends to the airport, community members work together to prepare their town for an incoming storm, and parents buy cupcakes at a school bake sale to help support programming and special activities. Although prosocial, these helpful behaviors are not volunteering. Volunteering is distinguishable from other types of helping in several key ways. First, volunteerism derives from free will, and is not enacted because of obligation or social pressure. That is, the decision to volunteer is motivated by personal goals and internal traits and states. Second, volunteerism is a deliberate process by which people intentionally seek opportunities to help others who desire assistance. Third, volunteers typically do not know the recipients of their helping prior to their service. Fourth, volunteerism extends over a period of time; it is not a reflexive, one-time act like calling for emergency assistance for someone in need. Finally, in contrast to neighboring behavior or informal forms of helping, volunteerism is primarily "formal helping" in that it is usually conducted through agencies or organizations.

Social science research has identified several demographic characteristics related to volunteerism. For example, volunteering is associated with being female, being younger in age, having higher educational attainment, reporting greater religiosity, and having higher socioeconomic status. Although these characteristics may influence aspects or manifestations of a person's personality, they are different from personality traits, and thus are not described in detail here.

In general, approaches to understanding personality and volunteerism fall into one of two categories: (1) an approach that focuses on the structure of personality traits in which traits are posited to be stable over time and to broadly influence behaviors, and (2) a dynamic approach that focuses on characteristics that differ between people, can be manipulated or primed, are influenced by contextual factors, and may also change over time and experiences. These dynamic "individual difference" characteristics appear to be stronger and direct predictors of volunteerism.

Structural Approach: The Big Five

The structural approach to personality is best exemplified by research on the "Big Five" personality traits. The Big Five are purported to be fundamental and enduring trait dimensions of a person's personality, and include openness to experience, conscientiousness, extraversion, agreeableness, and neuroticism. People higher in openness tend to be more open-minded, curious, imaginative, and creative. People higher in conscientiousness are generally more self-disciplined and also more organized and achievement-oriented. People higher in extraversion are energized by being with others, and they tend to be more assertive, boisterous, and sociable. People higher in agreeableness are generally interested in maintaining relationships with others; accordingly, they tend to be more trusting, cooperative, generous, and empathic. Finally, people higher in neuroticism tend to be emotionally volatile or unstable, and are prone to unpleasant emotions (e.g. anxiety, depression, anger).

Research on the Big Five traits suggests that volunteers, compared to nonvolunteers, tend to be more open to experience, more extraverted, more agreeable, and more emotionally stable (i.e. lower neuroticism). The findings for conscientiousness are less consistent, but suggest that volunteers may actually score lower on this trait (Bekkers, 2005). Among the Big Five traits, extraversion and agreeableness seem to be the most consistent predictors of volunteerism and other helping behaviors. Because volunteerism is a form of action focused on meeting the needs of others, it is not surprising that these two traits are related to volunteerism; extraversion and agreeableness both have at their core a concern about, and interest in, other people. Extraverts are gregarious, and seek out warm relationships and exciting social activities, which can be achieved through volunteerism. People higher in agreeableness, meanwhile, tend to be altruistic, modest, sympathetic, and cooperative with others; in short, they have behavioral tendencies that well-match those of volunteers.

Interestingly, extraversion and agreeableness might also jointly influence people's volunteer behavior. In one study, college students higher in agreeableness also reported greater prosocial motivations, regardless of their degree of extraversion. However, among students lower in agreeableness, extraversion was positively related to prosocial motivation (Carlo, Okun, Knight, & de Guzmán, 2005). In other words, extraversion may be especially important in predicting volunteerism among people lower in agreeableness. Additional findings from this study suggest that the predictive power of these Big Five traits may depend on an intervening and more proximal construct, namely prosocial motivation. Exploring specific motivations related to volunteerism is consistent with a dynamic approach to personality, and is described below.

Dynamic Approach: Traits and States

Not all aspects of a person's personality are stable; in fact, many of the strongest and most direct predictors of volunteering are characteristics that vary between people and within a person over time. Furthermore, many of these dynamic characteristics can be heightened or dampened via intentional or contextual influences (e.g. manipulations, priming). Research suggests four major types of dynamic personality characteristics that reliably predict volunteerism: (1) general prosocial orientation, (2) volunteer identity and community connections, (3) empathy and perspective taking, and (4) personal motivations and goals.

Separate from research on Big Five traits, there have been several attempts to define and measure general helpfulness, concern for other people, and prosocial propensities. These measures of altruistic or prosocial orientations tap predispositions toward caring about other people and taking action on their behalf. It is not surprising, therefore, that people who score higher in prosocial orientation or altruistic personality also are more likely to engage in volunteerism-related activities. In fact, reports of volunteer behavior have sometimes been used to validate measures of prosocial orientation under the logic that for a measure of prosocial orientation to be valid, it must consistently predict prototypic prosocial actions like volunteerism.

A second set of dynamic characteristics frequently related to volunteerism include identities and community connections. When people identify themselves as volunteers and consider volunteer work as a defining characteristic of who they are, they can be said to have a volunteer role identity or to be higher in volunteer identification. People with stronger volunteer-related identities are more likely to persist in volunteer tasks and to stay active as volunteers. Similarly, research suggests that when people feel connected to a community of other people who care about a cause or group of people (i.e. they have a greater sense of community), they are more likely to take action, including volunteering, on behalf of that cause or group.

Identity and community are both related to volunteering, but they are also related to each other. Oftentimes, being part of a community also means that a person identifies more with that group or volunteer role. In other words, these predictors of volunteerism are reciprocally related to volunteering and each other. For example, one longitudinal study of AIDS volunteers conducted over a six-month period demonstrated that volunteers who felt connected to the community of people affected by HIV and AIDS volunteered more at an AIDS service organization. As suggested by data collected later on, these same people developed stronger connections to, and integration into, that community (Omoto & Snyder, 2002). Thus, feeling connected to others, like identifying with a group or one's volunteer role, is not only a predictor of volunteerism, but also a consequence of volunteerism.

A third category of dynamic personality predictors of volunteerism includes empathy and perspective taking. Empathy refers to the tendency to feel another person's feelings and to experience compassion and sympathy for others, especially other people who are suffering. Perspective taking is sometimes considered one aspect of empathy, but also can be considered on its own. It refers to an ability to effectively put oneself in another person's shoes and to see the world from their vantage point or perspective.

Research suggests that both empathy and perspective taking are related to volunteering and other helping behaviors. To the extent that people experience greater empathy or more readily take the perspective of others, they appear more likely to volunteer, as well as to sustain volunteerism for longer periods of time. Moreover, both empathy and perspective taking have been conceptualized as relatively enduring traits, as well as temporary psychological states that can be induced or enhanced through specific instruction or contextual cues. For example, in one experiment, college students were directed to imagine the feelings and emotions of a person who was videotaped thinking aloud (perspective taking condition) or to consider the production quality of the video (control condition). Participants in the perspective taking condition were more willing to volunteer to help incoming students than participants in the control condition. Furthermore, because this study relied on an experimental manipulation of perspective taking, it also suggests that perspective taking may actually cause empathy and volunteerism (Oswald, 1996).

A good deal of research on volunteerism has explored individual-level motivations and goals that people pursue through volunteering. That is, from this perspective, people engage in volunteer work to satisfy personal goals or agendas for action. Research suggests that people may have relatively self-focused motivations for volunteering, like improving job-relevant skills or prospects, deepening understanding of a current societal problem, building social networks, or even to feel better about themselves. Motivations also can be predominantly other-focused; in fact, other-focused motivations tend to be consistent and strong predictors of volunteering. Thus, people may be moved to volunteer because of personal values that compel them to help and "give back," or as one way to assist groups of people and communities to which they are committed. Regardless of specific motivation type (e.g. self-, other-focused), research suggests that volunteers report greater satisfaction, enjoyment, and intentions to persist when their volunteer work allows them to directly address a specific and personal motivation.

An important point in work that focuses on motivations for volunteering is that the motivations of individuals, even when volunteering for the same cause, may differ. In addition, any person's main motivation for volunteering may change over time and experiences. For example, the findings of one meta-analysis of age and motivations for volunteerism suggests that motivations for volunteering may shift with age: younger people tend to report greater self-related motivations (i.e. to improve their career; to gain greater understanding of themselves or an issue), whereas older people tend to report greater social reasons (e.g. to stay connected to others; to meet new people; Okun & Schultz, 2003).

Related to age-based differences in motivation, theories of psychosocial development suggest systematic and predictable changes in volunteer motivation over the life course. For example, generativity, or the desire to leave a lasting legacy for future generations, increases later in life (when people are in their 40s to 60s) and is related to a range of behaviors, including volunteerism. In fact, cross-sectional research suggests that generative motivation is reliably related to volunteerism at all ages, but also better predicts the volunteerism of middle-aged and older adults than volunteering by younger adults.

See Also

Agreeableness
Altruism
Big Five
Compassion
Empathy, Personality Correlates
Extraversion, Personality Correlates of
Personality and Positive Psychology

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Morning vs. Night People

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The morningness chronotype (as represented by the lark) refers to an early sleeping and waking pattern. Individuals with a preference for morningness are known for achieving peak mental and physical performance at earlier times of the day (Adan et al., 2012). In contrast, individuals with a preference with the eveningness chronotype (as represented by the owl) exhibit a late sleep and wake pattern and are known for their performance towards evening-type behaviors. According to Tonetti, Fabbri, and Natale (2008), around 60–70%, of the population falls within the middle of these two extremes. While the focus may be represented by the extremes, the majority of the population may exhibit preferences towards morningness or eveningness.

Human chronotypes are related to an endogenous biological clock (internal clock) which regulates daily functions such as gene expression and sleep performance (Roenneberg, Wirz-Justice, and Merrow, 2003). Research from Wittmann, Dinich, Merrow, & Roenneberg (2006) explains that this internal clock contains a period of roughly 24 hours, which is also known as a circadian cycle. This internal clock is located in the *suprachiasmatic nucleus*, is a group of brain cells that are located in the hypothalamus (Moore, Speh, & Leak, 2002). The suprachiasmatic nucleus actively processes various information in order to develop circadian rhythms, or a routine schedule for our behaviors (Moore, et al., 2002). Within this schedule, there are certain hormones (mainly cortisol and melatonin) that are secreted at specific times, as well as the peaking of our body's temperature (Randler & Schaal, 2010). These rhythms contribute toward an individual's chronotype and lifestyle.

Cortisol, commonly known as the stress hormone, is released from the adrenal gland and has potential links in the awakening response. It has been recorded that there is a significant difference in cortisol levels in morning-types in comparison to evening-types after waking (Griefahn & Robens, 2008; Bailey & Heitkemper, 2001). In early risers, cortisol peaks during the morning, while late risers seem to have a delayed or later peak of cortisol (Kramer et al., 1999). Using salivary cortisol serum samples, morning-types had an increase in cortisol release 55 minutes earlier when compared to evening-types (Bailey & Heitkemper, 2001). In contrast, melatonin is released during the late evening or at night, and is believed

that be the best predictor for sleep onset in organisms (Benloucif et al., 2005). It has been documented that morning-types experience the release of melatonin three hours earlier than evening-types (Mongrain et al., 2004; Griefahn et al., 2002). Therefore, it is possible that an earlier release of melatonin may coincide with falling asleep earlier.

In addition to the secretion of cortisol and melatonin, there seems to be a noticeable difference in the peaking of body core temperature between the two chronotypes. According to Chelminski, Ferraro, Petros, and Plaud (1999), the morningness chronotype is associated with a rapid increase in body temperature in the morning, and a decrease in temperature throughout the rest of the day. In contrast, evening-types tend to have peaks in their body temperature during the middle of the day, and in some cases, at night (Chelminski, et al., 1999). It has been observed that morning-types have an earlier circadian temperature phase (approximately two hours earlier) than evening-types (Duffy et al., 1999; Gupta & Pati, 1994). Because there are observed differences in times for the peaking of body temperature, this difference may be an additional factor as to why morning-types tend to wake/sleep at earlier times, and are more suited for daytime activities when compared to behaviors of the evening-types.

While there have been observable internal differences between the two chronotypes, there still may be underlining factors that explain these differences. It has been hypothesized that between external factors (*Zeitgebers)* and the suprachiasmatic nucleus, are present in the natural environment. The most common example seen in the light/dark cycle (Adan et al., 2012). Based on societal norms, humans are normally active during the daylight hours, while resting during late evenings. With that being said, not everyone possesses this morningness chronotypes. The light/dark cycle provide cues for activity levels. Internal individual differences are a product of one's external factors which may influence habitual behavior, which in turn modifies our internal clocks (Adan et al., 2012).

Because humans are constantly adapting to their environment, specific chronotypes are not consistent throughout one's lifespan; there seems to be an age-specific shift towards morningness and eveningness. Using a sample size of 8,972 participants, aged from 10–87 years old, Tonetti et al. (2008) administered a cross-sectional survey in Italy. Results from this study showed that in adolescence, there is a pronounced shift toward eveningness. During this stage, adolescents and early adults tend to go to sleep and wake up later than other age groups. Additionally, as the aging process occurs, there is a gradual shift toward the morningness chronotype; this early waking and sleeping preference is even more pronounced in those over the age of 50 (Tonetti et al., 2008). This shift back into the morningness chronotype could potentially be associated with the expected normal hours of operations in the workforce, since "normal" working hours follow the 8 a.m. to 5 p.m. timeline.

When relating the findings of Tonetti et al. (2008) to how our society functions as a whole, it is important to understand that preference toward functioning during the hours of daylight exist. This would potentially cause an advantage to those who possess the morningness chronotype in comparison to those who exhibit nighttime behaviors. Evening-types have to shift their preferred sleeping times in order to adjust to their working or school activities. Ultimately, this causes a negative interference with their preferred sleeping habits (Wittmann et al., 2006). This phenomenon, known as *social jetlag*, describes routines

(e.g. work, school, and so on) as a leading factor in sleep deprivation. This disturbance in sleeping habits is comparative to jetlag because individuals experience a disturbance in their circadian clocks, or natural patterns. Therefore, evening-types tend to experience higher levels of social jetlag and increased sleep deprivation, when compared to morning-type individuals (Wittmann et al., 2006). This effect normally leaves evening-type individuals trying to compensate on days off for their lack of sleep during typical work days (Wittmann et al., 2006). Though social jetlag is mainly seen in evening-type individuals, morning-type individuals may also experience disturbances in their sleeping patterns. If on their free days, an individual stays up later than usual, and wakes up at their normal circadian wake up time, they would also experience a disturbance in their circadian clock (Wittmann et al., 2006).

Several studies have shown a relationship between chronotype well-being and performance; with the primary focus on evening-types. It has been observed that there are higher levels of psychological distress (primarily depression) among those in with the eveningness chronotype; with the highest prevalence of depression seen in adolescents and young adults (Chelminski et al. 2009). It has also been observed that evening-types are more prone to insufficient levels of sleep. These observed higher levels of depression may be explained by social jetlag; it is plausible that social demands, such as school and work, are disrupting their preferred sleep/wake cycle. Failure to adjust to these social demands may significantly affect one's achievements and performances; it is concluded that evening-type students perform worse in school when compared to those who possess the morningness chronotype (Wittmann et al., 2006). While there are positive correlations between sleep deprivation and depression (which consequentially negatively influences individual performance), there may be other underlining factors such as drug use.

While drug use is not chronotype specific, it seems that evening-types have a higher probability of experiencing disruptions in their sleep/wake cycles (Prat and Adan, 2011). Therefore, it is possible a higher probability of drug consumption (both legal and illegal) with individuals who experience the consequences of social jetlag. While social jetlag is most prevalent in the adolescent and young adult age group, drug consumption is not age specific. It is suggested that stimulants (caffeine and nicotine) are consumed in order to better adjust to be more active during the mornings, whereas depressants (alcohol, and cannabis) are used in the evenings to promote sleep (Adan et al., 2012). While this may help individuals adjust to their social environment, there is also evidence that the effects of drug use may persist for weeks or even months causing disturbances in the circadian rhythm (Adan et al., 2012).

In the human population, the majority are not affiliated with either extreme chronotype; but a preference in morningness or eveningness behaviors is expressed or exhibited. Individual differences play a key component in how an individual is able to perform during the day and night. Because of these individual differences, some people are better suited to perform during the day, while others are better suited to perform at in the late evenings/night. It is evident that society caters toward daytime behaviors; therefore, those who are more active during the day, or have adjusted toward morningness, will have an advantage when compared to those who struggle to adapt. Advances in technology, as well as differing times of shift work (evening and night shift), may allow evening-type individuals to be

more productive in their preferred hours. While there seems to be many risk factors and health implications in evening-type behaviors, maintaining a "norma," healthy sleeping schedule may prevent these risk factors from occurring. Therefore, regardless of an individual's chronotype, it is necessary to understand one's biological preference toward the morningness/eveningness spectrum and function accordingly. Understanding how one's body responds to external cues may contribute to increased productivity, but more importantly, one's well-being.

See Also

Health and Personality
Subjective Well-Being

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Diversity in Work Teams

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Diversity is variety. In terms of organizations, "diversity" is used to describe variety in human characteristics (e.g. physical location, culture, race, ethnicity, sex, age, religion, ability, personality, intelligence, personal experience, etc.). These characteristics can be categorized as relations-oriented or task-oriented (meaning they are likely to impact either relationships or tasks). Having a membership with variety (diversity) on these characteristics impacts teams in most modern organizations. Further, because diversity is a broad concept, it has a broad impact as well; it influences group cohesion, functionality, and other process-related variables, as well as creativity and task performance.

Relevance of Diversity to Teams

With organizations globalizing and using technology to cross geographic boundaries that were once a hindrance, diversity has become a reality, a challenge, and a boon in the workforce. Geographically dispersed work groups are now commonplace. However, diversity does not only occur at a distance; ever-growing minority groups in the (US) population means this is an issue even within domestic organizations that are centrally located. Work groups can have a wide variety of nationalities represented even in places that were at one time quite homogenous. In addition, a number of laws that have been enacted since the 1960s (e.g. Title VII of the Civil Rights Act, the Americans with Disabilities Act, the Age Discrimination in Employment Act, etc.) creates a more favorable environment for increasing diversity at work. These laws create more diversity in terms of a number of demographic variables, including race, ethnicity, sex, age, religion, and disability. Of course, diversity can also come in nondemographic forms as well. Individual differences on intelligence, personality, and personal experiences also can contribute to unique work environments for teams. The courts provide a context that is familiar to most Americans and an example where team diversity is already heavily considered. Lawyers put much thought into how the heterogeneity or homogeneity of a jury could impact trial outcomes.

Anyone who has served on jury duty can understand the forethought lawyers put into this as evidenced by the thorough questions asked during jury selection.

While diversity is an important consideration for organizations on the whole, it is an especially relevant issue for work teams in particular. This is because individuals in work teams interact. That is, diversity in individual differences is more likely to have an impact if those individuals interact than if they work in separate parts of an organization and do not interact. For example, if employees of different religions both work for the same organization, but do not interact, it is unlikely that their religious differences would affect them much. On the other hand, if they work together in a team, these same differences could impede or improve their success.

Work teams can take many forms; they can be small, large, centrally located, geographically diverse, highly interdependent, more independent, etc. Broadly defined, work teams are groups of three or more, but fewer than 50 employees whose work requires their cooperation. Some of these team characteristics (location, level of interdependence, size, etc.) can impact which types of diversity matter and to what extent they matter. For example, a team with religious diversity might not be impacted by that variable if they also have geographical diversity that requires them to communicate solely through email. In contrast, if the team has religious diversity, but are located together and interact in person, religion might impact their team outcomes.

Theories Relevant to Team Diversity

Among many theories that are relevant to the understanding of diversity in teams, two stand out. Attraction-selection-attrition theory describes how individuals tend to be attracted to groups of people (teams) that are similar to themselves. These groups also tend to select individuals who are similar to the group. Finally, individuals who enter the group, but are dissimilar, tend to leave when this becomes salient. In combination, this model explains how groups become homogenous. In addition, social identity theory provides many insights in terms of ingroup/outgroup dynamics. When part of a group, individuals base some of their own personal identity on that group membership. They also pay more attention to things that differentiate their group from others. This theory can help in the understanding of how diversity can be an obstacle (people from diverse backgrounds see each other as outsiders), but also how to improve cohesion in a diverse group (by making salient the commonalities among those in the group).

Impact on Cohesion, Creativity, and Task Performance

In general, diversity can be problematic for work teams in terms of group processes. Particularly, group cohesion suffers when a group is very heterogeneous. These groups often have decreased commitment, increased turnover, and group members communicate less with one another. Groups like these have been shown to have increased conflict. However, a meta-analysis by Horwitz and Horwitz (2007), raised questions about this conclusion with their finding that there was no relationship between diversity and social integration.

Creativity, on the other hand, seems to benefit from diversity in work teams. Creativity is particularly important for organizations, providing an edge in the competition for

resources and business. Groups that have diversity have a wider swath of knowledge and experiences to tap into and, as a result, tend to be more innovative than homogeneous groups.

The relationship between diversity and task performance is less clear. Some research has shown that diversity increases performance, while other studies show it is detrimental. Yet others find no relationship at all. A meta-analysis by Horwitz and Horwitz (2007) indicated that task-related diversity (e.g. organizational tenure, process knowledge, etc.) was positively related to performance, but bio-demographic (relations) diversity was unrelated.

While it seems that group processes suffer and creativity benefits from diversity, a clear conclusion cannot be made for any of these relationships as the research is still quite mixed. It helps to consider, then, the different effects of various types of diversity. In addition, there are a number of probable moderators to consider.

Impact of Diversity by Type

The types of diversities that groups experience can be separated into relations-oriented diversity and task-oriented diversity. Relations-oriented diversities are those that are most directly related to intra-group relationships (e.g. ethnicity, age, sex, etc.), while task-oriented diversities are variables that are likely to impact performance (education, organizational tenure, functional background, etc.).

A review of the literature indicates that relations-oriented diversity can impede group processes, but is less consequential in terms of performance. A closer look at some of these specific types of diversities can shed more light. Ethnicity, gender, and age are commonly studied in the context of work teams. The research on ethnicity indicates that it might be an impediment to communication. Groups that are ethnically diverse see fewer friendships formed among group members and an increase in emotional conflict. The relationship of ethnicity with performance is more mixed, though, with ethnic diversity sometimes improving and sometimes impeding this outcome. Gender diversity similarly relates to a decrease in communication, but research on performance is mixed. Age diversity has the same pattern of relationships. Overall, it seems that these variables are an impediment to group processes, but can sometimes be beneficial for performance.

Task-oriented diversity appears to be beneficial for performance but slightly detrimental for social integration. Tenure, education, and functional specialization are commonly studied variables in the context of work teams. Tenure diversity improves performance, but can also result in more emotional conflict and higher turnover. Education diversity and diversity in job experience similarly result in better team performance, but also higher turnover rates. Diversity in functional specialization (subject-matter knowledge) increases task conflict, but also improves creativity and performance in general (e.g. increased effectiveness and efficiency). Overall, it appears that task-related diversity can sometimes create conflict and increase turnover, but is beneficial for performance.

Moderators of Diversity's Impact on Teams

Because there are mixed results in the research on diversity in work teams, it is helpful to consider some of the moderators of this relationship. One of the clearest findings is that an environment that is supportive of diversity results in better outcomes for diverse groups.

In a supportive climate, diversity can result in a stronger sense of interactional justice, less aggression, and even better financial performance. Further, cultures that are more egalitarian and collectivist allow diversity to have more desirable outcomes.

In addition to the external environment, the mentality of those in the group is a very important moderator as well. If team members have a high learning approach orientation (a desire to advance their skills or abilities), diverse teams will perform better. Similarly, if team members have shared mental models about diversity, outcomes improve. If the diverse team has a strong team orientation, they experience less conflict.

Other situational variables that moderate this relationship are characteristics of the task itself. For example, how much interdependence is required by the task can impact the outcomes of diversity. Diverse teams that are more interdependent find it easier to attain positive outcomes than diverse teams that are less interdependent. The salience of the particular type of diversity to the task at hand is also very important. If a task is very gender-related, it is more likely that gender diversity will relate to important outcomes. Finally, how routine or novel a task is can lessen or increase the impact of diversity on outcomes. Diverse teams that are completing routine tasks are less likely to experience conflict than diverse teams doing novel tasks.

Time is yet another variable that moderates the impact of diversity on important team outcomes. Team longevity is related to less conflict in diverse teams. Further, if diversity is having a negative impact on group cohesion, that effect lessens over time, alleviating some of the concern over group processes. This moderator should be considered more seriously, though, because many diverse teams are "cross-functional" teams and exist short-term for specific projects.

Because diversity benefits performance and is a reality for most, if not all, organizations, it is common for organizational leaders to try to create an environment that optimizes outcomes and minimizes problems for diverse teams. One way to do this is by implementing diversity training. In instances when people have attitudes about diversity that are not positive, diversity training can help. Teaching team members about diversity increases their self-efficacy, which, in turn, allows them to work more effectively together. However, this only works if there is diversity in the team. If the team is not diverse, training them on the topic can actually worsen attitudes toward diversity. If the team is diverse, though, diversity training and, in particular, conflict management, can help increase their viability.

The leadership style implemented in diverse work teams can also affect team outcomes. In particular, transformational leadership is an effective style for diverse teams, improving outcomes for both teams that have relations-related and task-related diversity. Transformational leaders inspire dedication among followers; perhaps that dedication aids cohesion in diverse groups.

Future Research on Diversity in Teams

Because there are so many types of diversity, it is problematic that most studies in the current body of research only report one or two types; it would be beneficial for researchers to report on many types of diversity to give a more accurate picture of the teams they are studying. A team can be diverse on some aspects and nondiverse on others. Perhaps teams

that are diverse in multiple areas have a more difficult time achieving positive outcomes than those who have only one area of diversity. Also, certain types of diversities, when combined, might have a synergistic impact. Reporting on many types of diversity would allow for more meta-analyses on diversity in work teams and would address these interactions that have not yet been explored. Knowing about these interactions could help organizations support and sustain teams long enough that they still benefit from improved performance, but have had time to move beyond and grow from initial problems with group processes.

See Also

Creativity in the Workplace
Cultural Intelligence

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Creativity in the Workplace

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Creativity is commonly defined as the generation of ideas, products, or behaviors that are novel and useful. Organizations that are able to harness the creativity of their employees tend to be more profitable and successful than their less creative counterparts. Below, we review the key individual and contextual factors that relate to creativity in the workplace.

Individual Differences

Openness/Intellect

Openness/Intellect is one of the five major dimensions of personality, and is the trait that is most consistently associated with heightened creativity and innovation at work (Hammond, Neff, Farr, Schwall, & Zhao, 2011). People who score highly on this trait excel at creative tasks for multiple reasons: (1) Increased cognitive flexibility allows for more divergent thinking styles; (2) a larger working memory capacity increases the chance of combining distal ideas; (3) higher levels of implicit learning facilitates the unconscious generation of novel associations; and (4) a stronger motivation to explore new ideas leads to greater engagement with the creative process (DeYoung, 2014).

Intrinsic Motivation

Intrinsic motivation reflects the inherent desire to perform an activity, regardless of external rewards. Higher levels of intrinsic motivation for a given task are strongly associated with increased employee creativity (Amabile, Conti, Coon, Lazenby, & Herron, 1996). Intrinsic enjoyment of a task may sometimes, however, result in a greater focus on the novelty of a creative product, with less consideration for its usefulness. This tendency can be overcome when intrinsically motivated people also have a strong desire to help others,

resulting in an increased focus on the usefulness of their creative products and ideas (Grant & Berry, 2011).

It has also been proposed that strong external incentives can decrease creativity by undermining intrinsic motivation. Others, however, have suggested that such incentives can provide positive reinforcement for a person's creative abilities. A recent meta-analysis in this area suggests that extrinsic rewards are slightly better at predicting the quantity of work output, while intrinsic motivation is much better at predicting the quality of creative work (Cerasoli, Nicklin, & Ford, 2014).

Creative Self-Efficacy

Creative self-efficacy reflects the extent to which an individual believes that he or she is capable of being creative. Higher levels of creative self-efficacy, which can fluctuate in response to successes and failures, are associated with increased engagement and improved performance during creative tasks (Tierney and Farmer, 2002). Creative self-efficacy can be fostered through the adoption of a learning goal orientation, in which a person focuses on long-term mastery of a task, rather than focusing only on short-term performance (Gong, Huang, and Farh, 2009).

Multicultural Experience

Researchers have also found that time spent living abroad is associated with higher scores on tests of creativity. Adapting to new cultural environments demands novel patterns of thought and behavior, which stimulates creative thinking. Multicultural experiences among executives has similarly been related to firm-level creative innovation. In a longitudinal study of fashion houses over 11 years, those firms whose executives had the greatest depth of multicultural experience also displayed the highest levels of creative innovation (Godart, Maddux, Shipilov, & Galinsky, 2015).

Contextual Characteristics

Leadership

Employee creativity is more likely to emerge with supportive leadership practices, including fair performance assessments, open interactions between supervisors and subordinates, and enhanced support for work teams (Shalley, Zhou, & Oldham, 2004). Compared with directive or autocratic styles, empowering leadership, in which leaders share their authority and encourage employees to take on more responsibility, has also been found to increase followers' creativity (Zhang & Bartol, 2010). Transformational leadership likewise helps increase creativity because it boosts employees' intrinsic motivation to perform well at their jobs. Higher quality relationships between leaders and employees can also foster a climate that is supportive of innovative practices (Scott & Bruce, 1994), stimulating creative performance above and beyond the effects of individual employee attributes (Shalley & Gilson, 2004).

Social Environment

Having support from one's colleagues can also be important for fostering creativity at work. Amabile et al. (1996) found that creativity is associated with encouragement from one's work group, including constructive feedback, shared commitment to the project, and a collective openness to ideas. Social support from colleagues, supervisors, family, and friends, are all known to increase positive mood states among employees, leading to higher levels of creativity. In contrast, harsh criticism of new ideas and a lack of support tends to inhibit creative production and encourage more conventional thought and behavior (Shalley, Zhou, & Oldham, 2004).

Job Complexity

Job complexity refers to the amount of autonomy, feedback, significance, identity, and variety that employees experience while performing their jobs. More complex jobs tend to elicit greater interest and engagement from employees, which in turn is associated with higher levels of creativity (Shalley et al., 2004). Routinized jobs with minimal complexity, on the other hand, are the least likely to encourage creative behavior.

Organizational and National Cultures

An organization's cultural can have a strong impact on the creativity of individual employees. For example, Scott and Bruce (1994) demonstrated that employee creativity is more likely to thrive within an organizational climate that supports innovation. Yuan and Woodman (2010) found that innovation-supportive climates increase creative performance by reducing the perceived risks associated with creative behavior, and increasing expectations for positive outcomes. Amabile et al. (1996) likewise found a positive effect of organizational cultures that encourage creativity by valuing risk taking behaviors, providing fair and supportive evaluation of novel ideas, and encouraging employee participation in decision making processes.

   The broader culture environment in which an organization is situated can also influence its creativity levels. Cultures that demand a rigid adherence to existing social norms can inhibit the creative generation of novel practices. For example, US states with tighter social norms also tend to generate a smaller number of patents per capita, a common measure of creativity and innovation (Harrington & Gelfand, 2014). Organizations that adopt rigid social norms similarly tend to be less receptive to creative ideas and generate fewer creative products.

Knowledge Creation in Organizations

Much of the creativity that occurs in the workplace is enacted as the creation of new knowledge, which depends on a continuous dialogue between the tacit and explicit knowledge held by employees (Nonaka, 1994). Tacit knowledge is that which is implicitly understood but hard to codify and communicate to others, while explicit knowledge is

easily codified and transferred to other members of an organization. According to Nonaka's (1994) dynamic theory of knowledge creation in organizations, these forms of knowledge are combined through four processes: socialization (integration of tacit knowledge), externalization (conversion of tacit knowledge into explicit knowledge), combination (integration of explicit knowledge), and internalization (conversion of explicit knowledge into tacit knowledge). The creation of new knowledge is argued to involve a repeated application of these processes.

Given the importance of knowledge integration for creativity, the management of organizational knowledge is an important topic of study. Creativity tends to increase when knowledge is openly shared among team members and by managers. Possessing a larger pool of domain-relevant information within a group of employees is similarly associated with higher levels of workplace creativity. Lastly, higher levels of creativity are most likely to emerge from employees who actively increase their own pool of knowledge by seeking out new information from others (Nonaka, 1994).

See Also

Creativity
Creativity, Assessment of
Individual Differences in Creativity

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Individual Differences in Creativity

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Individual Differences in Creativity

Individual differences in creativity have been of great interest for decades. The field of creativity research is itself not all that old, but the interest in individual differences goes back all the way to the beginning. The same is true of the *nomothetic* approach, with its emphasis on groups, general tendencies, and universals, as is indicated by the theories and research that look for characteristics, capacities, or tendencies shared by all creative individuals, or at least by groups of creative people. Indeed, general tendencies need to be taken into account, even when the interest is in individual differences. There are domain differences, for example, with creative artists manifestly different from creative scientists and creative leaders, just to name one example where you would expect to see individual differences (e.g. persons varying along a continuum) that are only meaningful when group variations are also recognized. This is true of domain differences, but there are also predictable variations in different age groups and even in different historical eras.

That being said, the *idiographic* view, with its emphasis on individual differences, receives an enormous amount of attention, probably because of the nature of creativity. Self-expression can be quite creative, for example, and it is by definition idiosyncratic. Indeed, many of the characteristics of creativity require individuality (e.g. autonomy, intrinsic motivation, rebellion, contrarianism, divergence), and these imply that individual differences must be recognized. The present entry reviews the research and theories of individual differences in creativity. Universals are brought into the discussion here and there, to ensure a comprehensive view.

Creativity does not depend on any one capacity. It is instead a complex or *syndrome* (MacKinnon, 1965; Mumford & Gustafson, 1988). Whatever the label, the key idea is that creativity is the result of cognitive, emotional, attitudinal, motivational, and psychic processes. The present chapter touches on individual differences in each of these categories, though of course the realistic view is that creativity depends on an interactions among them.

Some theories also include a social component in the complex, the idea being that social recognition is required, but the parsimonious approach holds the social components as useful for fame and impact rather than creativity per se. Indeed, both fame and impact can and should be extricated from the creativity complex (Runco, 1995). This can get complicated when the focus is on creative achievement, for it does require social recognition. But the key parts of creativity – bringing something original and effective into being – need not be socially recognized, and various expressions of creativity (i.e. everyday creativity, personal creativity, and the creativity of children) do not depend on any social tendency. Indeed, because originality is required for all creativity (Runco & Jaeger, 2012), if anything, there is an asocial or even antisocial requirement for creativity! Only by being able to ignore expectations and other social pressures can the creator produce something that is original, novel, rare, or unique. The capacity to ignore social pressures is well explained by the personality theories that point to the unconventional tendencies, autonomy, and contrarianism as part of the creative personality.

This brings us to the topic of individual differences in personality, which is for several reasons the best starting point. Most of the early investigations of creativity focused on the personality traits that were thought to underlie all creativity, so by starting with personality we can see how the field of creativity studies evolved.

Individual Differences in Creative Personality

A number of seminal studies on creativity came out of the Institute for Personality Assessment and Research in the 1950s, 1960s, and 1970s. Often, traditional personality measures were used, including the MMPI, the California Psychological Inventory, the Adjective Check list, and the Thematic Apperception Test. There was fair agreement among the measures and indeed a short list of core characteristics was identified (Barron, 1995; Barron & Harrington, 1981). These include flexibility, openness to experience, independence, wide interests, intrinsic motivation, risk tolerance, autonomy, playfulness, unconventionality, curiosity, and humor. The work at IPAR took those domain differences that were mentioned above into account, and samples represented distinct fields (e.g. writers). Several interesting investigations sampled architects, the idea being that they represented a blend of skills and drew from aesthetics but also engineering. Another attraction of the work at IPAR was the comparison of different levels of creative achievement. World-class creators were often compared with less accomplished groups (see Dudek & Hall, 1991, for a follow-up study of architects). This idea of looking to high-level creators caught on, probably because any uncertainty of whether something is in fact creative is circumvented if the creativity is unambiguous and beyond question.

Gardner (1980) used this reasoning when he developed his well-known theory of multiple intelligences–which really represents another way of acknowledging the domain differences mentioned several times already in this chapter. Gardner's work pointed to musical, mathematical, verbal-symbolic, bodily-kinesthetic, spatial, interpersonal, intrapersonal, and naturalistic domains. Gardner's sampling of unambiguous cases included his case studies of Freud, Stravinsky, Einstein, Picasso, Gandhi, T. S. Eliot, Martha Graham. He concluded that there were two things that were shared by all creators.

They are child-like and self-promoters. This conclusion may be a reflection of his focus on high-level creators. Self-promotion may not be vital for creators unless they are working towards broad social recognition.

Individual Differences in Creative Cognition

Research on the cognitive bases of individual differences was not far behind the personality research on creativity. Guilford (1968), for example, developed several measures of divergent thinking, many of which are still used today (see also Runco, 1991; Torrance, 1995). The longevity of Guilford's work probably reflects the fact that he developed a broad theory, as well as measures well-tied to the that theory. The logic of divergent thinking is also compelling. His "structure of intellect theory" was criticized but one part held up: Certain cognitive processes allow individuals to produce new ideas. This is the most likely when the cognitive processes direct thinking in different directions, hence the label, *divergent* thinking. Logically, if an individual is thinking divergently, it is likely that he or she will find original ideas. This ties divergent thinking to creativity because originality is a requirement of creativity. It is necessary though not by itself sufficient (Runco & Jaeger, 2012). Divergent thinking is distinct from convergent thinking where the cognitive processes converge on one correct or conventional answer. Again using logic, it is unlikely that convergent thinking will lead to original ideas. Convergent thinking is useful in school, or on an IQ test, or when the problem at hand is well defined.

Individual differences are readily apparent when people think divergently. In fact, they are obvious in various ways, including ideational fluency, which is defined as the number of ideas produced. In one of my own early investigations of divergent thinking I administered a divergent thinking task that asked students to "list as many things as they could that moved on wheels." They were given as much time as they wanted, which is an important consideration, given that the most original ideas are found only after obvious ideas are depleted (Mednick, 1962). Indeed, individual differences in divergent thinking will not be found unless examinees are given quite a bit of time – and in fact they should not be informed that they are being timed! Reliable divergent thinking scores are found when the tests are given under *game-like* rather than *test-like* conditions. If divergent thinking tests are given under test-like conditions, the only examinees who will earn high scores are the ones who do well in school and are good at taking tests. Creative examinees, on the other hand, will be found when the testing conditions are game-like. The aforementioned individual differences in ideational fluency were quite obvious in that I found a mean of 17 (across 240 middle school children), but one boy gave 120 ideas, and of course, with a mean of 17, quite a few students were giving fewer than 10 ideas. There was a wide range, or obvious individual differences, in fluency.

There are comparable individual differences in *ideational originality* and *ideational flexibility*. The first of these can be objectively scored, which is a huge advantage for divergent thinking testing, by identifying uncommon ideas. The most uncommon idea is unique; only one person gives it. Only one student in the sample mentioned above (the boy who gave 120 ideas) produced the response, "curricle." Other ideas were uncommon, though not entirely unique. They too are indicative of originality, even if they may be given by 1%,

3%, or even 5% of the sample of examinees. Ideational flexibility, on the other hand, represents the number of distinct conceptual categories are used by an examinee. If the individual gives "car, automobile, Ford, truck, pick-up, 18-wheeler, and motorcycle," for example, only one or two categories are used, in contrast to someone who says "car, luggage, skateboard, jets, trains, and my mom when she is driving." There are clear individual differences in both originality and flexibility, just as there are for fluency. It can be useful to take all three dimensions into account in a sort of profile, and various new indices of divergent thinking have been proposed now that computers have been employed for creativity assessment. Divergent thinking tests have more than reasonable predictive validity, even in 50-year longitudinal research.

Creative Style

Another approach to understanding individual differences uses *creative style*. The word style is used here as it is in the work on cognitive style (e.g. impulsivity vs deliberation). Style is distinct from ability in that the latter measures "how much" (e.g. "how much intelligence – what is the level of intelligence?") and the former focuses on "how" (e.g. "how does the individual process information?"). Research on abilities often relies on one or very few dimensions, and each person in a sample is placed somewhere on a continuum. The styles approach is different in that its primary objective is to determine which methods different people use when solving problems. Different continua are therefore used.

Geir Kaufmann and Oyvind Martinsen, for example, developed a measure of *assimilator style* or an *explorer style*. Martinsen wrote (in the 1995 Creativity Research Journal):

> A-E theory posits that there are individual differences in the dispositions toward relying on past experience and seeking novelty in cognitive activities. These individual differences manifest themselves in relatively stable, cognitive, strategic dispositions where assimilators give priority to upholding cognitive economy and explorers seek new types of solutions and new ways of solving problems. Thus, explorers are seen as more innovative and original and are posited to perform better than assimilators when there is a high level of novelty (low degree of relevant experience) in the task. In contrast, assimilators are posited to perform better when they have a high level of relevant experience.
>
> *(p. 292)*

Not surprisingly, Martinsen was interested in the interaction between style and the use of experience. His empirical research confirmed that assimilators did indeed benefit more from experience than did the explorers, at least on insight problems.

Other styles have also been related to creativity. Min Basadur, for example, identified individual differences using a measure which categorized managers as generators, optimizers, conceptualizers, or implementors. Field experiments suggested that the optimizer style was the most responsive to training in creative problems solving. Michael Kirton described a measure of adaptor and innovator styles that is often used. Gerard Puccio et al., for example, used it and found relationships with self-reports of creative products.

As Puccio et al. put it (in the 2009 *Creativity Research Journal*), "the adaptive orientation was linked to products that were described as logical, adequate, well-crafted, and useful.... the innovative style was highly related to product characteristics such as original, attractive, transformational, and expressive" (p. 157). The key tenant of the styles approach is that there are different ways to be creative. Creativity is possible using more than one style.

Multivariate Theories

Several theories of creativity have predicted an interplay among processes. This approach makes a great deal of sense because behavior in the natural environment is rarely dependent on one process or skill. Creativity in particular is likely to be multivariate. Recall here the idea of a creativity complex or syndrome.

Sternberg (2006) took an economic approach to creativity. He described how creators "buy low and sell high," which is essentially a contrarian tactic, and he had developed a model of creativity that describes the use of six resources, namely intellectual ability, styles of thinking, knowledge, motivation personality, and environment. Sternberg (2006, p. 6) concluded that "although levels of these resources are sources of individual differences, often the decision to use the resources is the more important source of individual differences." Runco, Johnson, and Gaynor (1999) had reached a similar conclusion and also argued that decision-making represents the most important part of creative behavior. They found illustrations of this in individuals deciding what to study, how to invest their time, what to ignore, who to read, what career to pursue, where to pursue it, and even what ideas and solutions to examine and share with others. Decisions about where to work may come as a surprise, but then again, this makes an enormous amount of sense given what we now know about geographic distributions and creativity (Florida, 2002). Decisions about what solutions and ideas to pursue are also extremely important, especially given what was noted above, that original ideas are remote (Mednick, 1962). Such remote and creative ideas will not be found unless the individual chooses to persist in exploring a particular line of thought. Without a doubt many individual differences in creativity reflect variations in the decision-making process.

Conclusions

Individual differences in creativity have been described in terms of key traits, cognitive skills, styles, attitudes, decision-making, and even the use of resources. This range is necessary because creativity is a complex. Recall also the important point that there are different ways to be creative. This implies not only that a person can be creative in art or mathematics or science or some other domain, but also that individuals may be creative with one style, or with a very different style. The same can be said about the different traits, though this does remind us that the most realistic view of individual differences in creativity is probably that which recognizes an interplay between personality, cognition, and extra-cognitive processes. All of this underscores the importance of individual differences for

the understanding of creativity. After all, saying that there are different ways to be creative assumes that there are individual differences.

There is intriguing agreement among the different kinds of research. Openness, risk taking, and contrarianism, for instance, are each used in the personality research, the cognitive research, and the research on attitudes. Independence and risk taking are also found in different kinds of research on creativity. In addition, the neurosciences are now being employed and very likely these will soon uncover relevant individual differences. One step in this direction involves dopamine, which both shows individual differences and a correlation with certain indicators of creative potential. And although a number of interactions were mentioned in this chapter (especially in the section devoted to multivariate approaches), research examining the interaction and interplay of the various dimensions and factors is still sorely needed. Given the value placed on creativity, for problem solving, health, and progress, there is no doubt that the study of individual differences in creativity will continue, with great benefit for many disciplines and domains.

See Also

Creativity, Assessment of
Creativity in the Workplace
Openness

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Individual Differences in Employee Performance

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With the ever-increasing use of technology in employment selection, organizations receive several times as many applicants for one job posting as were received one decade ago. Understanding the links between individual differences (e.g. cognitive ability and personality) and job-related performance can assist in the screening and selection process as well as in performance management.

Job-Related Performance

Although task performance (i.e. completing the explicit role requirements of the job) is frequently studied in organizational research, employers are increasingly interested in selecting employees who can also effectively perform tasks not explicitly outlined in employees' job descriptions. In addition to task performance, other highly relevant forms of performance include adaptive performance (i.e. adapting well to organizational change), team member performance (i.e. working well within workgroups), training performance (i.e. proficiency in training programs), and contextual performance (i.e. exhibiting organizational citizenship behavior, OCB). Additionally, effective performance as an organizational leader requires a separate set of skills and traits than those needed for lower-status jobs. These distinct aspects of job-related performance are discussed due to their relevance to organizations.

Predicting Job-Related Performance

Much research has found that general cognitive ability is the best predictor of job performance across employment contexts. However, others have found that cognitive ability tests exhibit high rates of adverse (discriminatory) impact against racial minority members and can result in expensive, reputationally damaging federal lawsuits against organizations.

Thus, employee selection personnel are asked to implement relatively inexpensive, valid methods of predicting employee job-related performance, that exhibit little to no discrimination.

Big Five Personality Model

To avoid some of the negative outcomes associated with the use of cognitive ability measures, some have gravitated toward using personality traits as predictors of job-related performance. Personality is frequently described as broad patterns of behavior that exhibit relative consistency across time and place. Although several classifications of personality exist, the five-factor model, often referred to as the "Big Five," is the dominant taxonomy of normal personality. As suggested in its name, the Big Five consists of five individual factors, or dimensions, of personality, namely agreeableness, conscientiousness, emotional stability (the opposite of neuroticism), extraversion, and openness to experience. Prior empirical evidence has found weak correlations among the five factors, suggesting that each dimension captures distinct aspects of personality. Furthermore, there is evidence of weak correlation between personality and cognitive ability, suggesting that these two constructs measure different attributes.

Personality in Employment Decision-Making

Guion and Gottier (1965), in their review of the validity of personality measures in employment selection, concluded that personality measures exhibit little value as predictors of job-related performance. However, more recent research suggests quite the contrary (Barrick & Mount, 1991; Hogan & Holland, 2003). Although each of the five factors has been shown to relate to the broad construct of job-related performance, some of the factors have been shown to be better predictors of general task performance, whereas others have been shown to predict specific job criteria. The following sections briefly describe the Big Five factors of personality and present research linking each factor to several aspects of job-related performance.

Conscientiousness

Conscientiousness is the personality trait associated with responsibility, dependability, timeliness, attention to detail, and achievement-oriented attributes (Barrick & Mount, 2012). It is widely known that conscientiousness is the Big Five personality factor exhibiting the strongest relationship to task performance across nearly all jobs (Barrick & Mount, 1991, 2012). Prior research, however, suggests that highly conscientious employees may exhibit less creativity than those with moderate to low levels of the trait (Barrick & Mount, 2012; Hough, 1992). Nonetheless, meta-analytic evidence suggests that conscientious employees adapt well to organizational change (Huang, Ryan, Zabel, & Palmer, 2014), conscientious leaders engage in transformational leadership (Bono & Judge, 2004), and conscientiousness is the Big Five personality trait with the strongest relationship to overall OCB (Chiaburu, Oh, Berry, Li, & Gardner, 2011).

Emotional Stability

Individuals with high levels of emotional stability (low levels of neuroticism) are typically calm, relaxed, and do not show high emotional reactivity to normal day-to-day stressors. Similar to conscientiousness, prior research has found emotional stability to relate positively to job performance across work contexts (Barrick & Mount, 2012). Meta-analytic evidence found that, among the Big Five factors, emotional stability exhibited the strongest relationship with adaptive performance (Huang et al., 2014), and that emotional stability is tied with agreeableness as the Big Five personality trait with the second-strongest relationship with general OCB (Chiaburu et al., 2011). Moreover, Bono and Judge (2004) found a significant, positive relationship between emotional stability and transformational leadership.

Extraversion

Extraversion is the Big Five personality trait most associated with sociability and outgoingness. Unlike conscientiousness and emotional stability, extraversion has not been shown to predict overall job performance across jobs. Furthermore, Chiaburu et al. (2011) found a nonsignificant relationship between extraverted employees and engagement in overall OCB. Nonetheless, previous research examining extraversion has found that it relates to other important forms of job-related performance. For example, meta-analytic evidence found that extraversion has the strongest relationship with transformational leadership relative to the other Big Five factors (Bono & Judge, 2004). Barrick and Mount (1991) concluded extraverted employees exhibit superior training performance relative to introverted employees. Additionally, Mount, Barrick, and Stewart (1998) found that extraversion is a stronger predictor of performance in jobs involving teamwork relative to jobs involving low interpersonal interaction.

Agreeableness

Highly agreeable individuals are likely to be compassionate, caring, and nonargumentative (Barrick & Mount, 2012). Agreeableness has also not been shown to be a generalizable predictor of job performance. Moreover, Bono and Judge (2004) discovered that agreeableness did not have a significant relationship with transformational leadership. However, agreeable employees can benefit organizations in several important ways. For example, research suggests that agreeable employees perform better in team-based jobs relative to jobs requiring little to no interpersonal interaction (Mount et al., 1998). Furthermore, employees higher in agreeableness have also been shown to engage in more OCBs (Chiaburu et al., 2011).

Openness to Experience

The final factor of the Big Five, openness to experience, is the personality trait associated with artistic-mindedness and inquisitiveness. Despite the prominence of Big Five taxonomy in organizational research, much less attention is afforded openness to experience than the other four Big Five factors. Perhaps this is because many empirical studies have found nonsignificant relationships between openness to experience and task performance. Additionally, the meta-analysis by Huang et al. (2014) found that openness to experience did not significantly relate to employee adaptive performance. Despite these findings, other research has found that openness to experience is, in fact, a valid predictor of job-related

performance constructs, including innovative performance (Hammond, Neff, Farr, Schwall, & Zhao, 2011), creative work performance (Pace & Brannick, 2010), training performance (Barrick & Mount, 1991), and OCB (Chiaburu et al., 2011). Hence, employees with high levels of openness to experience can be quite valuable organizational assets.

Other Personality-Related Traits

Although the Big Five personality model is the most widely used taxonomy of normal personality in organizational research, other personality-related individual difference traits have also been shown to predict job-related performance. Core self-evaluations, which are comprised of self-esteem, generalized self-efficacy, locus of control, and emotional stability, have been described as basic appraisals that people have of themselves (Judge & Bono, 2001). Prior meta-analytic evidence by Judge and Bono (2001) found that not only are core self-evaluations positively related to job performance, but that each of the four components of core self-evaluations positively relate to both job satisfaction and job performance. Additionally, prior empirical evidence suggests that trait competitiveness positively relates to both learning effort and performance in sales-oriented roles (Wang & Netemyer, 2002). Lastly, emotional intelligence, which is described as the capacity to use one's own emotions and the interpretation of others' emotions to inform one's thinking, is an individual difference characteristic that has recently received substantial theoretical and empirical research attention. Specifically, emotional intelligence has been shown to positively relate to job performance (Joseph, Jin, Newman, & O'Boyle, 2015).

Limitations and Future Directions

Although there is a sizable literature on personality in relation to job-related performance indicators, there are notable limitations of using personality assessments in personnel decision-making contexts. Primarily, researchers and practitioners are wary of the increased prevalence of faking on personality assessments due to social desirability bias and self-monitoring processes. Since faking can decrease the reliability and validity of personality assessments, researchers have examined several techniques (e.g. conditional reasoning tests, forced-choice formats, warnings) to mitigate faking. However, there is mixed support for the effectiveness of such methods. Thus, an important future research direction is to improve existing counter-faking techniques as well as develop novel approaches to mitigate faking. Additionally, researchers ought to consider exploring curvilinear relationships between personality traits and job-related performance domains. For example, Mudrack, Bloodgood, and Turnley (2012) found evidence that too much competitiveness can be counterproductive in team settings. Therefore, it is worth examining whether extreme levels of other personality traits (e.g. extraversion, agreeableness, etc.) can also exhibit counterproductive effects.

Overall, the use of personality assessments in employment decision-making has received wide theoretical and empirical research support. Furthermore, in using personality tests in the employment decision-making process, organizations can avoid some of the pitfalls associated with the use of other methods, while, at the same time, maintaining confidence in their ability to select highly valuable employees.

See Also

Big Five
Cognition and Personality
Core Self-Evaluation
Creativity in the Workplace
Emotional Intelligence in the Workplace
FFM and Facets
Individual Differences in Employee Performance
Personality and Leadership
Social Desirability

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Emotional Intelligence in the Workplace

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Although initially developed for application in educational settings, the concept of emotional intelligence was quickly adapted by both scholars and practitioners and applied to workplace settings, stimulated to a large extent by popular books authored by *New York Times* columnist Daniel Goleman, and with particular focus on its role in leadership. Almost immediately, however, the construct came under attack, especially from scholars of social and industrial-organizational psychology, and especially by scholars of leadership. In this entry, discussion is based on two articles written in response to criticism of the construct. In the first (Ashkanasy & Daus, 2005), the authors proposed that there are three "streams" of emotional intelligence scholarship. *Stream 1* refers to the concept as defined in Mayer and Salovey (1997) and measured using the MSCEIT (Mayer-Salovey-Caruso Emotional Intelligence Test) or other measures of ability, similar to measures of IQ; *Stream 2* refers to the concept as defined by its originators (Mayer & Salovey, 1997), but utilizes measures employing self- or peer-report methodology; *Stream 3* refers to alternative definitions of emotional intelligence typically also using self- or peer-report measures. The second (Daus & Ashkanasy, 2005) presented the case for the ability model in organizational behavior research. In the reminder of this entry, each of the three streams is addressed in turn.

Stream 1

"Stream 1" refers to the so-called "ability perspective" of emotional intelligence, in which the construct is construed as a specific constellation of mental skills and abilities that develop over time. The concept, originally defined in 1990 as "the ability to monitor one's own and others' feelings and emotions, to discriminate among them and to use this information to guide one's thinking and actions" (Salovey & Mayer, 1990; p. 189), has evolved and broadened over the last 25 years. Within the Stream 1 perspective, contemporary scholars refer to the "four-branch" ability model defined by Mayer and Salovey in 1997. These

branches are hierarchically arranged from most basic to most complex: (1) perception of emotion; (2) use of emotion to facilitate thought; (3) understanding of emotion; and (4) management of emotion.

Perception of emotion involves identifying accurately discrete emotions in self and others. *Use of emotion to facilitate thought* includes the ability to be able to use emotions to direct attention to critical information about events, persons, and the environment to help make accurate judgments and decisions. As well, this branch involves using emotion to assist reasoning and problem solving. *Understanding emotion* is having knowledge of the predictors of discrete emotions, including how they change (e.g. are amplified or suppressed). Subsumed in this is the skill verbally to label emotions appropriately, and be able to distinguish between similar but distinct emotions (e.g. regret and guilt). Finally, *management of emotion* includes regulating emotions in self and others. This also comprises being able to stay open to experiencing a variety of emotions as well as engaging or detaching from emotions appropriate to the context.

Emotional intelligence as an ability has been found empirically to be related moderately to other types of intelligences, and weakly-to-moderately related to personality structures such as the Big Five (openness, conscientiousness, extroversion, agreeableness, emotional stability). Of these, the only trait that shows more than a weak relationship with ability emotional intelligence is agreeableness, which has a small amount of conceptual overlap (Mayer, Roberts, & Barsade 2008). There is also evidence that ability emotional intelligence is inversely associated with Machiavellianism. Ability emotional intelligence has thus demonstrated definitive and appropriate discriminant and convergent construct validity.

Importantly, ability emotional intelligence has been found empirically to predict a variety of life outcomes. Regarding psychological health and well-being, emotional intelligence as an ability is negatively related to anxiety and depression and symptoms of schizophrenia; and positively related to well-being and seeking treatment when needed.

Emotional intelligence as an ability also predicts children's social and psychological health and well-being, as well as academic performance, including problems – both social and academic – at school. While there is mixed evidence regarding academic performance of high school and college-aged individuals and emotional intelligence, there is consistent evidence that, with younger children, ability emotional intelligence predicts attention and learning, and positive attitudes toward school.

Moreover, a plethora of evidence supports the idea that those higher in ability emotional intelligence fare better socially and have more positive social functioning. Quite simply, these people have more friends, better social support systems, and generally higher quality relationships, both romantic and platonic. Moreover, ability emotional intelligence consistently negatively predicts poor life choices regarding destructive and addictive behaviors such as nicotine, drug, and alcohol use, stealing, and fighting.

Finally, regarding emotional intelligence as an ability in applied domains, the work environment has been studied extensively regarding how ability emotional intelligence plays out. Generally, regarding work performance, positive relationships have been found with ability emotional intelligence.

Conversely, however, recent evidence suggests a potential performance downside to some aspects of emotional intelligence. For example, the emotionally intelligent, just like the traditionally cognitively intelligent, may use their abilities for personal gain, to

manipulate and to get ahead in an organizational setting. The negative relationship mentioned earlier regarding ability emotional intelligence and Machiavellianism is contrary to this suggestion, however.

Stream 2

Stream 2 models of emotional intelligence include self- and peer-report measures that the authors claim are based in either Salovey and Mayer's (1990) three-dimensional model, or the more recent "four-branch" model of emotional intelligence (Mayer & Salovey, 1997). Examples of this genre include the Schutte Self Report Emotional Intelligence Test (SSEIT: Schutte et al., 1998), the Wong and Law Emotional Intelligence Scale (WLEIS: Wong & Law, 2002), and the Workgroup Emotional Intelligence Profile (WEIP: Jordan, Ashkanasy, Härtel, & Hooper, 2002). Among them, these three articles have been cited more than 4,200, 8,600 times in Google Scholar® at the time of writing. The popularity of these measures derives from the fact that they are relatively short (usually) self-report scales, easily administered either in hardcopy or online forms, and are available for use in the public domain. A further issue is that, while the scales are normally administered in self-report format, they are based in the original model of emotional intelligence put forward by the construct's originators.

Although the three Stream 2 scales are purportedly based in the work of Mayer and Salovey, following factor analysis, the authors of all three scales reported that their scales essentially measure four (different) dimensions: (1) appraisal and expression of emotion in self; (2) regulation of emotion in self; (3) use of emotion to facilitate thinking; and (4) recognizing and managing emotion in others (see Table 1 for a summary).

Nonetheless, and despite concerns that they are subject to common method issues, the Stream 2 measures seem to perform consistently well in meta-analytic studies. The measures have also been successfully used to demonstrate that emotional intelligence is associated with team performance rather than individual decision-making performance.

Table 1 Dimensionality of Three Stream 2 Measures.

SSEIT (Schutte Self Report Emotional Intelligence Test)	WLEIS (Wong and Law Emotional Intelligence Scale)	WEIP (Workgroup Emotional Intelligence Profile)
1) Appraisal and expression of emotion	1) Self-emotion appraisal	1) Aware of own emotion
2) Regulation of emotion in the self	2) Regulation of emotion in self	2) Discuss own emotion
3) Utilization of emotion	3) Uses of emotion	3) Emotions facilitate thinking
4) Regulation of emotion in others	5) Others' emotion appraisal	4) Recognize others' emotion
		5) Detect false emotions
		6) Empathy
		7) Manage others' emotion

Stream 3

Measures of emotional intelligence classified in Ashkanasy and Daus (2005) as "Stream 3" use self- and peer-reports similar to the Stream 2 measures, but they are *not* based on Mayer and Salovey's original definitions of emotional intelligence. Well-known examples include the Goleman's Emotional Competence Inventory (ECI: Hay Group, 2005), the Bar-On's (1997) EQ-i™, Petrides, Frederickson, and Furnham's (2004) Trait Emotional Intelligence Questionnaire (TEIQue), and Genos™ (Gignac, 2001; Palmer, Stough, Harmer, & Gignac, 2009).

Although widely used, especially as consulting tools, the main question surrounding these measures is what they represent. The authors of these measures all claim that they measure "real" emotional intelligence, and make strong claims for the predictive validity of their scales, but this is most likely because of their strong overlap with personality measures; for example meta-correlations as high as r = .85 has been reported. Given that the Genos measure was originally developed by factor-analyzing a collection of personality measures, however, this is hardly surprising. Similarly, the EQ-I began life as a form of sub-clinical personality assessment for Bar-On's doctoral dissertation on psychological well-being and alexithymia (inability to identify emotions in the self). As Ashkanasy and Daus (2005) point out, Bar-On recognized the potential for his measure to be used for emotional intelligence only after reading Goleman's best-selling book on the topic.

In terms of dimensional structure, and as can be seen in In Table 2, the Stream 3 measures all share some commonality with Stream 2. For example, all include sub-scales to measure emotional self-awareness and emotional regulation. Also clear from the table, however, is that the scales tap into a wide variety of additional social competencies, including inspirational leadership (ECI), problem solving (EQ-i), stress management (TEIQue), and emotional reasoning (Genos). Given the wide range of these constructs combined with their overlap with personality, it is no wonder therefore that Stream 3 measures appear to have broader predictive validity than either Stream 1 or Stream 2 measures.

Conclusions

In this entry, emotional intelligence and its applications in workplace settings is discussed from three perspectives corresponding to the three "streams" of emotional intelligence research identified in Ashkanasy and Daus (2005). Streams 1 and 2 are based on the Mayer and Salovey (1997) "four-branch" definition of emotional intelligence that is generally recognized as the preeminent definition of the construct. Stream 2 measures differ from Stream 1 insofar as they rely on self- or peer-ratings of emotional intelligence, as opposed to Stream 1, which is based on the MSCEIT or other ability measures. Stream 3 models of emotional intelligence, while ostensibly performing well in terms of predictive tests, in fact most likely only do so because of their documented overlap with personality measures. As such, it is recommended that scholars steer clear of Stream 3 approaches, especially if their interest is in measuring and/or applying the construct of emotional intelligence as defined by its originators.

Table 2 Dimensionality of Four Stream 3 Measures.

ECI (Emotional Competence Inventory)	EQ-i™	TEIQue (Trait Emotional Intelligence Questionnaire)	Genos™
1) Emotional self-awareness	1) Self-regard	1) Adaptability	1) Emotional self-awareness
2) Accurate self-assessment	2) Emotional self-awareness	2) Assertiveness	2) Emotional expression
3) Self-confidence	3) Assertiveness	3) Emotion perception	3) Emotional awareness of others
4) Emotional self-control	4) Independence	4) Emotion expression	4) Emotional reasoning
5) Transparency	5) Self-actualization	5) Emotion regulation	5) Emotional self-management
6) Adaptability	6) Empathy	6) Empathy	6) Emotional management of others
7) Achievement	7) Social responsibility	7) Impulsiveness	7) Emotional self-control
8) Initiative	8) Interpersonal relationship	8) Relationship skills	
9) Optimism	9) Stress tolerance	9) Social competence	
10) Empathy	10) Impulse control	10) Stress management	
11) Organizational awareness	11) Reality testing		
12) Service orientation	12) Flexibility		
13) Developing others	13) Problem solving		
14) Inspirational leadership	14) Optimism		
15) Change catalyst	15) Happiness		
16) Influence			
17) Conflict management			
18) Teamwork and collaboration			

See Also

Character and Leadership
Emotional Intelligence
Personality and Leadership
Social Intelligence
Social Skills in the Workplace

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Personality and Leadership

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Introduction

Leadership is the key to organizational effectiveness. It is the art of providing vision, understanding and maximizing the talents of each follower, and inspiring followers to contribute toward achieving a common goal. Effective leadership is associated with competencies such as good listening and mentoring skills, goal-setting, problem solving, and ethical decision-making, as well as with certain personality traits such as extraversion and conscientiousness. The combination of individual traits and qualities forms a leader's distinct personality character, and is associated with his/her leadership approach and style.

An evolutionary perspective of leadership argues that since human beings are naturally selfish, they will only allow a person to lead if it is advantageous to their survival. As such, people must be able to assess and identify leaders who possess key leadership traits and who can ensure the group's survival. Since individual differences are directly related to group dynamics and performance, certain personalities may be better equipped to lead than others.

There is an ongoing debate about whether leaders are born with personality characteristics that set them apart from followers or whether anyone can develop to become a leader under the right circumstances and training. The trait-based perspective argues that certain innate characteristics make people suitable for leadership. The Great Man Theory, a popular nineteenth-century approach, assumed that great leaders are born, not trained; they acquire heroic and powerful male qualities. Research in the mid-1900s focused mainly on the relationship between basic personality characteristics and leadership. Later, McCrea and Terraccino (2005) studied people from more than 50 countries and found that the Big Five traits (extraversion, conscientiousness, openness to experience, agreeableness and neuroticism) are universal and can be used to accurately describe the personality of leaders. Recently, researchers have focused on more specific traits such as intelligence, self-confidence, determination, sociability and integrity that relate to effective leadership.

While the trait-based approach posits that a person who does not have the "right personality" cannot become a leader, behavior-based approaches argue that anyone can develop certain behaviors and/or competencies which can lead to effective leadership. Incorporating Skinner's theory of behavior modification through reward and punishment, the Ohio State Studies in the late 1940s identified independent dimensions of leader behavior, which were narrowed down to initiating structure (i.e. defining roles and tasks, and organizing work) and consideration (i.e. demonstrating concern for group members). Other studies followed a similar approach (e.g. University of Michigan studies). Overall, studies found that leaders high on both dimensions tend to achieve high follower performance and satisfaction. However, one limitation was the lack of consideration for situational factors, which could explain the absence of a consistent relationship between these behavioral dimensions and group performance.

Understanding effective leadership is more complex than isolating a few traits or behaviors. Awareness of critical situational influences on leadership effectiveness, such as leader-member relations, position power, role clarity, group norms, and information availability, led to the development of the contingency theories in the late twentieth century. The most comprehensive was developed by Fiedler (1967), who proposed that leader styles must match task structure, leader-member relations, and the leader's ability to administer rewards and punishment. Other contingency theories followed, including Hersey and Blanchard's Situational Leadership Theory (1969), Graen and colleagues' Leader-Member Exchange Theory (1982), and House's Path-Goal Theory (1971).

A leader with a personality type associated with certain characteristics is more likely to prefer a certain leadership approach. For example, extraverted managers may find it easier to lead meetings, confront presentations, and lead change. Despite diverse approaches to leadership, it is generally acknowledged that leader personality influences his/her leadership style, which in turn influences interpersonal and team dynamics, and ultimately organizational outcomes.

When we refer to personality's effect on leadership, we generally consider its impact on leader emergence (i.e. the assumption of leadership in a group) and leader effectiveness (i.e. the leader's ability to build a successful team or organization). In the next section, we summarize key findings of past research related to personality and leadership emergence, effectiveness, and style.

Personality and Leadership Emergence

Leadership emergence refers to being perceived as a leader and being motivated to lead. Leaders who emerge in a group exhibit certain personality characteristics. Extraversion, openness to experience, conscientiousness, emotional stability, authoritarianism, creativity, masculinity, antagonism, self-esteem/efficacy, and social skills have all been found to strongly predict emergence, albeit the magnitude of the overall effect was moderate (e.g. Judge, Bono, Ilies, & Gerhardt, 2002). Although agreeableness does not predict emergence, it does predict the emergence of relationship-oriented leaders whereas extraversion, openness to experience, and conscientiousness predict the emergence of task-oriented leaders (Emery, Calvard, & Pierce, 2013).

Personality also impacts motivation to lead (MTL). Some people devote more energy and resources to becoming a leader in various situations. MTL has three main components: affective, social-normative, and non-calculative. Affective MTL refers to enjoying leading. Social-normative MTL defines people who believe it their duty to lead. Non-calculative people have no desire to lead. People who enjoy leading and who consider leadership as their duty tend to be outgoing and sociable by nature (i.e. extraverted) and are confident in their own leadership abilities (i.e. have high self-efficacy) (Chan & Drasgow, 2001).

Personality and Leadership Effectiveness

Just because someone emerges as a leader does not necessarily mean s/he will be effective. Estimates of managerial failure have been as high as 50%, suggesting that at least half of all leaders emerge and then perform poorly. Research shows that all Big Five personality traits, as well as achievement motivation, energy, dominance, honesty/integrity, self-confidence, and creativity predict leader effectiveness (Hoffman, Woehr, Maldagen-Youngjohn, & Lyons, 2011).

While most studies have operationalized effectiveness as perceived performance at work, some research has used more objective measures of leadership effectiveness, such as group and organizational performance outcomes. For example, Boone, de Brabander, and Hellemans (2000) found that CEO internal locus of control positively predicted company performance indicators, including cash flow on assets, return on assets, price-cost margin, and labor productivity in small- to medium-sized companies.

While trait-based approaches have mainly focused on positive leadership traits, "dark side" personality traits, which represent negative leadership attributes, have also been studied. These are often not apparent during an initial meeting when first impressions are made, and thus are difficult to detect when selecting individuals for leadership roles. Although these dark side traits (e.g. narcissism, psychopathy, and Machiavellianism) may not inhibit day-to-day functioning, they can cause undesirable social interaction, and negatively predict overall managerial performance and critical managerial work behaviors (Gaddis & Foster, 2015).

Personality and Leadership Styles

Past approaches neglected the complexity of leadership processes and the context in which they operate. More contemporary research focused on combinations of traits, behaviors, and styles which are stronger predictors of leadership than individual traits. While the most commonly known leadership styles are authoritarian, democratic, and laissez faire, contemporary research on personality and leadership styles has mainly focused on transformational, transactional, ethical, servant, and authentic leadership styles, which are briefly summarized below.

Leadership expert Burns (1978) defined transformational leadership as a process where "leaders and their followers raise one another to higher levels of morality and motivation" (p. 83). Transformational leaders exhibit four characteristics: idealized influence (high

ethical standards, engendering loyalty and respect); inspirational motivation (communicates a compelling vision based on values and ideals); intellectual stimulation (challenges norms and encourages creative solutions); and individual consideration (develops, coaches, and consults with followers). Transactional leaders, on the other hand, focus on monitoring and controlling employees, and taking corrective action as necessary.

Both styles have been linked to the Big Five personality factors. Extraversion showed robust relations with both leadership outcomes and leadership behaviors. CEOs who are more emotionally stable and open to experience are more likely to exhibit transformational leadership behaviors, which subsequently enhances employee commitment and overall organizational performance (Colbert, Barrick, & Bradley, 2014). Although ratings of transactional leadership behaviors were less strongly related to personality, agreeableness, extraversion, and neuroticism positively predicted aspects of transactional leadership (Bono & Judge, 2004). While these studies discovered the dispositional basis of these styles, there was substantial variability across studies, suggesting that future research must focus on narrower personality traits and situational characteristics.

Ethical leadership is a style characterized by integrity and ethical conduct that is, in turn, embraced by followers who emulate these behaviors, and is associated with positive outcomes such as job satisfaction, organizational commitment, and task performance. People high on agreeableness, conscientiousness, extraversion, and emotional stability are more likely to exhibit ethical leadership behaviors (Kalshoven, Den Hartog, & De Hoogh, 2011).

Servant leadership is another moral leadership concept characterized by the fundamental view of the leader as servant to others. Servant-led organizations manifest greater trust in the leader and the organization, organizational citizenship behavior, procedural justice, team and leader collaboration, and overall effectiveness. Perceptions of servant leadership were positively related to agreeableness and negatively related to extraversion (Hunter, Neubert, Perry, Witt, Penney, & Weinberger, 2013).

Finally, authentic leadership has garnered increased attention over the past decade, having been linked with several positive follower and organizational outcomes. It is characterized by self-awareness and consistency among one's identity, beliefs, and behaviors (Gardner, Cogliser, Davis, & Dickens, 2011). Despite a paucity of research linking personality to authentic leadership, authentic leaders act in accordance with their own personality so as to be authentically perceived by themselves and others. It is important for future research to investigate its personality antecedents.

Conclusion

The focus on personality and leadership has waxed and waned over the last 100 years. The idea that people are born with certain traits predisposing them to become leaders was not consistently supported by early studies. Bivariate correlations between specific traits and leadership were small, if not significant, making the applicability of the trait approach limited. This led to the rise of other approaches combining individual characteristics and behaviors as distinctive leadership styles.

With the advent of sophisticated meta-analytic and modeling techniques, recent studies have demonstrated that, upon statistical correction, personality variables do have a

moderate impact on leadership outcomes. For example, Judge et al.'s meta-analysis (2002) found a multiple correlation of .48 between the Big Five personality traits and leadership. Additionally, more studies are incorporating personality traits as either antecedents or moderators of the relationship between state-based characteristics and behaviors, and different leadership outcomes. Many of the broader leadership perspectives, such as transformational and ethical leadership, incorporate specific personality attributes as important aspects of said styles. A number of personality traits, such as openness to experience and tolerance for ambiguity, also enable leaders to adapt to situational changes. Similarly, emotional intelligence as a trait has garnered attention among researchers and practitioners, especially with regard to how leaders can utilize awareness of self and others to regulate emotions and interact effectively with others (e.g. Roy, 2015).

In sum, the contemporary discussion of personality and leadership has moved beyond whether (and which) traits predict leadership to how personality variables influence leadership behaviors, training, and coaching through various mechanisms, and how these occur in diverse situations.

Applications

Personality assessments are commonly used to identify leader potential and readiness within talent selection and development programs. Evidence from personality research is useful for matching individuals to certain jobs and roles. Personality traits are foundational attributes that likely predispose leaders to display certain mindsets or behaviors, as well as develop knowledge, skills, and abilities in response to specific scenarios. However, scoring high on a particular trait such as extraversion does not mean that scoring low necessarily prevents one from being a good leader. In fact, it has been argued that introverts could be great supervisors because they are good listeners and tend to be very thoughtful (Cain, 2012). Overall, whether personality attributes contribute to actual success depends on the type of organization, organizational level, and other follower and contextual characteristics.

Another application is the use of personality assessments for personal and professional development. Leaders could leverage existing traits or alter personal attributes through personal reflection, coaching, mentoring, training, and other targeted interventions. While a debate remains about the extent to which personality is malleable, new evidence suggests that personality is fluid, despite change occurring slowly or perhaps not at all for some individuals (Roberts & Mroczek, 2008). Leaders with a deeper understanding of their own personality, thoughts, emotions, values, and motives are better able to adapt their behavior and leadership style to be more compatible with specific situations, while identifying ways to utilize their natural strengths in the workplace.

Future Directions

Personality is important to the leadership puzzle but it is not the only piece. Future research should consider integrative frameworks that link personality and other attributes (e.g. cognition, motives, values, demographics), with specific skills, behaviors, and other mechanisms

(e.g. attribution and leader-follower identification processes). The interaction of these factors and their effect on diverse leader effectiveness outcomes should take contextual elements into account. A number of such integrative models have been proposed for further empirical investigation (e.g. Zaccaro 2007). Within such frameworks, researchers can consider a broader set of outcomes, examining subjective, as well as objective, measures of leader performance at the individual, dyad, group, and organizational levels.

Moreover, it is important to look at the relationships among personality, culture, and leader effectiveness in today's global environment. The GLOBE project (House, Hanges, Javidan, Dorfman, & Gupta, 2004), the most extensive research on leadership and societal values, has found that certain leadership traits are universally acceptable (e.g. decisiveness, honesty, team-builder, intelligence, and excellence-oriented), while others are universally unacceptable (e.g. ruthless, egocentric, non-cooperative) or culturally contingent (e.g. enthusiastic, compassionate, risk-taking). GLOBE researchers also highlight the importance of tolerance for ambiguity, cultural flexibility, and a global mindset. Further research should examine whether these attributes actually predict global leadership effectiveness.

Finally, as the study of leadership expands from a "Great Man" lens to alternative conceptualizations, it is important to look at feminine perspectives as well as collective notions of leadership. Examining the personality configurations among followers or team members could also shed light on how to form and maximize the performance of leadership teams.

See Also

Authoritarianism
Conscientiousness
Dark Triad
Extraversion
Leadership Styles

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Leadership Styles

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Leadership has been a topic of contentious debate since the time of the ancient philosophers. In the nineteenth century, philosophers explored the ways in which individuals gain and maintain leadership positions. With the emergence of psychology as a discipline, theories of leadership became more focused on individuals. Over the years, researchers have explored leadership from a number of different perspectives including behavioral, trait, and to a much lesser extent contextual. These elements generated a number of different, sometimes conflicting leadership theories. In the twenty-first century, researchers are exploring the need for new leadership prototypes to fit the changing world demographics.

Leadership Theories

Leadership psychology has its roots in the same era that the discipline of psychology was formed. Upon examining influential figures in history, philosophers of the nineteenth century developed what is known as the Great Man Theory (GMT). This theory states that a person would achieve a leadership position based on favorable qualities such as charisma, intelligence, and wisdom. Criticism of this theory argues that it fails to acknowledge the effects of outside influences on a leader's behavior. Though largely discredited due to its restrictive nature, the GMT became a framework for future ideas and research into what constitutes a leader.

The study of human personality and heritability gave rise to the investigation of differences between people's traits. In the 1920s and 1930s trait theory surfaced as a dominant paradigm in personality psychology, and thus heavily influenced leadership studies. Trait psychologists looked to the traits that differentiated leaders from nonleaders. Neglectful of early GMT criticism, trait theorists believed that the qualities and abilities that comprise a leader are inherent or innate to that individual. In other words, there are some traits that are more suitable for leadership than others. Trait leadership explores the influence of

certain traits and what they are rather than the behavior that makes them a leader. Trait theory evolved to focus on specific components of leadership that can be associated and attributed to a leader to determine their effectiveness.

Critiques of GMT and development of trait theory gave rise to the attempt to understand leadership from a behavioral perspective. Behavioral leadership techniques focus on the principle that a leader can be conditioned and taught to lead effectively as opposed to having the innate ability to lead as seen in trait theory. Favorable leadership traits are understood as behaviors and are applied through learning processes rather than identifying and isolating them within a person. Behavioral theories gave way to the use of training programs in the workplace to condition leaders with the behaviors seen as most effective and beneficial to the company.

In the 1940s and 1950s, two groundbreaking studies in behavioral leadership emerged in the field. Ralph Stodgill used 1800 leadership related statements with nine leadership dimensions to create the Leadership Behavior Description Questionnaire (LBDQ). The LBDQ was administered to a variety of groups including college students and faculty as well as military personnel. Stodgill found that not only is there no consistent pattern of traits among leaders but also that there were two distinct leadership types: consideration (people oriented) and initiating structure (task oriented) (1948). This inability to quantify traits among leaders rendered the GMT an incompetent assessment of leadership. In the GMT's place, behavioral styles like consideration and initiating structure provided a fresher understanding of leadership.

Contingency theories of leadership generally rely on the notion that a leader's effectiveness depends on numerous factors such as their personality, the work environment/culture, and the followers. Fred Fielder pioneered this theory in 1958 with his least preferred coworker scale (LPC), which is used to ask a leader which traits they find the least appealing in a coworker. Low LPC scores represent a task-driven leader while high LPC scores represent a relationship-focused leader.

Leadership Styles

German-American psychologist Kurt Lewin, known for his pioneering social, organizational, and applied psychological inquiries, was at the forefront of contemporary leadership psychology. He and his colleagues (Lewin, Lippit, & White, 1939) conducted numerous experiments concerning decision-making styles and their influence on three different styles of leadership:

- *Autocratic*: leader makes executive decisions without consultation of followers.
- *Democratic*: followers are involved in decision-making but leader makes final decision based on group consensus.
- *Laissez-Faire*: minimal decision-making by the leader, followers make decisions on their own and deal with consequences on their own.

Transactional leadership is a managerial style focusing on the "help me help you" agreement between the leader and the follower. The leader either uses contingent rewards (explaining what must be done to gain a reward) or passive management by exception

(using corrective techniques if follower behavior is substandard). The style is based on behavioral assumptions that individuals will follow in order to meet survival needs (longer hours for larger paycheck) and that leaders will operate within their environment and culture. Despite research demonstrating its relative ineffectiveness, this style is still popular today.

According to James Macgregor Burns, transformational leadership (TF) is based on the idea that a leader should go beyond the exchange of bare living essentials and inspire followers to change their lives for the better. Burns criticized the simplicity of transactional leadership and its lack of fulfillment for the followers. Burns pointed to leaders such as Gandhi, Martin Luther King, Jr., John F. Kennedy, and Franklin D. Roosevelt who transformed not only many lives but also the culture and environment in which they existed. Burns emphasizes that leaders raise the ethical and moral standards, energize followers with their own empowerment, and promote corporate responsibility. Bernard M. Bass believed that TF leaders should focus on intrinsic motivation and positive development of followers, raising awareness of moral standards, clarifying goals, ethical climate/ethical standards, and encouragement to look beyond self-interest, appeal based on reason, and allowing freedom of choice.

Bass challenged Burns's notion that a leader was either transactional or TF claiming that leaders use both styles. Bass's approach includes four TF leadership components that are commonly referred to as the Four Is:

- *Idealized influence:* match the follower's leadership prototype, be a role model they can respect, admire, and trust, put others' needs before their own, and behave consistently with values and principles of the group.
- *Inspirational motivation:* motivate by providing meaning and challenge to follower's tasks, arouse team spirit/cooperation, be enthusiastic and optimistic, and create desirable visions for the future.
- *Intellectual stimulation:* stimulate innovation and creativity by encouraging followers to question assumptions, reframe situations, and approach old problems from new perspectives.
- *Individualized consideration:* act as coaches or mentors that foster personal development, provide learning opportunities in a supportive climate for growth, and tailor to the individual needs and desires of each follower.

The term *transformational leadership* is often used interchangeably with *charismatic leadership* because they both involve creating a vision as inspiration for followers. However, they are different in a number of important ways. Charismatic leadership often occurs in times of social crisis. Followers personally identify with a charismatic leader and are inspired by them to work toward a goal. Because the leader with a charismatic style is so extraordinary, they often inspire hatred among individuals with different values. Also, while transformational style emphasizes the development, improvement, and empowerment of followers, charismatic style does not. Doing these behaviors might even serve to make the charismatic leader seem less exceptional.

More recently there has been an emphasis on leadership styles that involve ethical behavior (i.e. servant, spiritual, and authentic leadership). Servant leadership is a particularly popular style. While it originated in religious leadership, it can be applied outside of that

context as long as it involves working for equality and social justice. This style involves "serving" the follower by helping them to develop and empowering them. By serving their followers, leaders with this style hope to improve their followers' well-being. Using this style effectively results in followers who are trusting and loyal. Spiritual leadership is a style similar to servant leadership in that the leader tries to find ways to improve circumstances for followers. Spiritual leadership, though, addresses two specific needs: transcendence and fellowship. If a follower achieves transcendence, they find that their work has value that goes beyond their own personal benefits. In other words, their work achieves a greater good. A follower who has fellowship finds joyful and meaningful relationships as a result of their work. Authentic leadership is another style that has gained popularity. A leader whose behaviors are consistent with their espoused values characterizes this style. The consistency between values and behaviors shows followers that the leader has personal integrity. The transparency inherent in this style also poses a risk for leaders whose followers do not share the same values.

Poor corporate management in the twenty-first century has called for a reassessment of leadership roles. Layoffs, psychological disengagement, and economic recession are among the many consequences that can be attributed to a crisis in ethical leadership. A shift in leadership theory toward an ethical approach is crucial to eliminating uncontrolled greed, distrust, and other organizational problems. Change from the typical authoritarian style of leadership to a more benevolent one includes a focus on collaboration rather than competition. Current theories like transformational leadership have demonstrated progress in some areas of leadership research but further development into ethical sides of leadership is needed.

Benevolent leadership is defined as the process of creating a virtuous cycle of encouraging, initiating, and implementing positive change in organizations through: (1) ethical decision-making and moral actions, (2) developing spiritual awareness and creating a sense of meaning, (3) inspiring hope and fostering courage for positive action, and (4) leaving a legacy and positive impact for the larger community.

Situational leadership is based on contingency theory and was developed by Paul Hersey in the 1960s and Ken Blanchard in the 1970s and 1980s focusing on the aspect that there is no universal or best way to lead but rather that leaders have the ability to adapt to different situations. This style relies on expectations of maturity levels (M) within the group, which ultimately determines which situational leadership type (S) is used. Hersey and Blanchard each developed their own unique situational leadership model where Hersey's is the Situational Leadership Model and Blanchard's is the Situational Leadership Model II. Though both rely on the same basic principles, they decided in 1977 to work in separate organizations.

Each model describes the Four Ss of situational leadership:

- S1 Telling: high directive behavior and low supportive behavior.
- S2 Selling: high directive behavior and high supportive behavior.
- S3 Delegating: low directive behavior and high supportive behavior.
- S4 Participating: low directive behavior and low supportive behavior.

Additionally, each model describes the Four Ms of situational leadership:

- M1: Unable and insecure.
- M2: Unable but willing.

- M3: Capable but unwilling.
- M4: Very capable of and competent.

Diversity and a New Leadership Style

Contemporary researchers have been arguing for the need to reframe the leadership style debate. Eagly and Johnson (1990) conducted a meta-analysis of the research regarding gender differences in leadership styles. They examined the results of studies in three classes: organizational, laboratory, and assessment. In organizational studies, though gender stereotypes would suggest females would use a more interpersonally oriented style and males would use a more task-oriented style, they found no gender differences. However, gender stereotypes did hold across all three classes of studies when considering the democratic versus autocratic leadership styles. Females were found to lead in, and have a preference for, a more democratic style while males preferred the autocratic style.

Recent census data predict that the population of the United States, in particular, will become a majority minority nation by the year 2050. Based on these data, and more, Chin and Trimble argue for the development of a new prototype for describing leadership styles. In their book *Diversity and Leadership* (2015), they examined prior and current research and conducted face-to-face interviews with members of a number of different world cultures. Through this process Chin and Trimble developed a list of 64 characteristics and behaviors thought to be associated with effective leadership. They then created a measure that asked participants to rate the extent to which they considered these characteristics and behaviors to be necessary or unnecessary for effective leadership. Their findings suggest that the individuals who completed the survey rejected those qualities associated with the alpha-male type leadership style. Across genders and cultures, participants tended to be more in favor of characteristics and behaviors associated with a more democratic, interpersonal style. Their ongoing research appears to support the need for new research leadership paradigms to accommodate diverse multicultural leadership styles.

See Also

Character and Leadership
Emotional Intelligence in the Workplace
Personality and Leadership

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Character and Leadership

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Character Conceptualized

Over the centuries, philosophers, theologians, psychologists, historians and managers have considered the topic of character and its relevance to leadership. *Character* represents malleable traits, cognition, affect, and behavior that reflect either the best or worst in humanity and their outcomes (ethics, happiness, well-being, and effectiveness). Character, if good, represents the willed imposition of principled habits of excellence in morality, concern for others, social interaction, spirituality, and self-respect, over the innate flaws associated with the human condition. Habits of thought inform the intellect, which uses reason to determine one's thoughts and behaviors. Habits of conduct inform the will, which exercises control over the leader's temperament, thoughts, feelings, and conduct. Good (or bad) habits of thought and conduct prompt good (or bad) behavior because habits are reinforced by the intellect and will.

Character and Leadership

Character is important to leadership because it describes what constitutes the habitual practices of leaders and followers and their effects on organizations. The personal attributes of leaders gain more importance in the way they are transmitted to followers and in the way that character mobilizes followers towards a common goal. Leaders must not only talk about good character; they must also display good character through their behaviors and encourage its development in followers. As such, leadership scholars are now agreeing that it is not enough to possess certain positive leadership characteristics; an understanding of how these characteristics operate to influence followers and organizations across situations is also required. Media accounts of ethical scandals at Enron, Madoff Investment

Securities LLC, and the US Veterans' Administration highlight failures of character in leadership. Thus, leadership character has important implications for organizations and their policies, mission, performance, and reputations.

The behavior of leaders exemplifies either what is considered to be good (virtue) or bad (vice). *Virtue* represents exemplary character and temperament, morally good and right behavior that leaders ought to do, and human excellence, all of which result in good consequences. In contrast, *vice* represents deficient character and temperament, immoral and wrong behavior that leaders ought not to display, and human degradation, all of which result in bad consequences. Virtues or vices determine the attitude leaders hold toward their community, followers, and self, and the will they exert in leading others through their behavior.

Philosophers consider the *will* to be the sum of choices, desires, motives, and responsibilities valued by an individual depending on whether virtue or vice is appreciated. The will is similar to what psychologists consider when discussing self-awareness, self-regulation, and self-motivation. Leader self-awareness, self-regulation, and self-motivation are essential to the operation of the will. They describe how leaders understand their strengths and weaknesses, make sense of events around them, adapt their behavior to situations, and persist during challenging times. This practice is an ongoing developmental process whereby they continually reflect on the unique aspects of their virtues, vices, identity, knowledge, abilities, and goals. Character-based leadership is one that can be developed through willed conduct. In developing character, leaders first need to acknowledge their ownership of the moral aspects of an environment, and then have the courage and self-efficacy to guide and direct their behavior to create a virtuous and moral environment (Hannah & Avolio, 2011). These psychological processes enable virtuous behavior to occur when principles of virtue overcome bad thoughts and feelings when leaders may be predisposed to or tempted by vices.

Classic vs. Contemporary Considerations of Character and Leadership

Leadership scholars have offered a wide variety of definitions of character by considering the nature of virtue from different perspectives. Some scholars have focused on Aristotle's cardinal virtues of justice, fortitude, prudence, and temperance from an ethical leadership perspective (Riggio, Zhu, Reina, & Maroosis, 2010). These four virtues reflect the Greek concept of "ethos," which can be translated into the word "character." Other scholars have integrated Aristotelian and Confucian virtues as courage, temperance, justice, prudence, humanity, and truthfulness (Hackett & Wang, 2012), or have identified virtues of wisdom and knowledge, courage, humanity, justice, temperance, and transcendence as foundations for authentic transformational leadership (Peterson & Seligman, 2004; Sosik, 2015; Sosik & Cameron, 2010).

A common theme running through these perspectives are the virtuous habits of conduct superimposed on leaders' personal attributes (traits, cognition, affect) that influence how leaders behave with other individuals, and how these and prior interactions shape their self-identity over a series of life events and situations. This theme suggests that leadership character may be depicted as the process model shown in Figure 1.
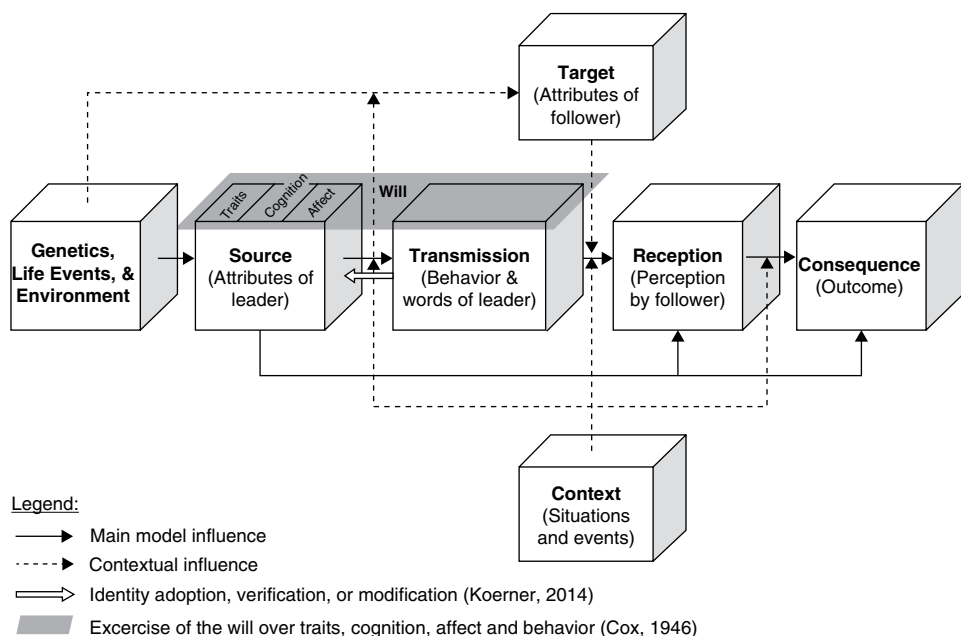
Figure 1 Process model for character and leadership.

Genetics, life experiences, and the environment influence the source and target of character, namely who leaders and followers are as individuals (traits), what they think about themselves and others (cognition), and how they feel (affect). A growing stream of research focuses on *character strengths* that are defined as malleable traits and psychological processes that individuals use to display virtue, think in virtuous ways, and maintain a virtuous (positive) mental attitude. Peterson and Seligman (2004) identified 24 character strengths, which they theoretically sorted into six virtue categories (wisdom and knowledge, courage, humanity, justice, temperance, transcendence). According to Peterson and Seligman (2004), wisdom and knowledge are manifested in the strengths of creativity, curiosity, love of learning, open-mindedness, and perspective. Courage is revealed in the strengths of bravery, integrity, persistence, and vitality. Humanity is reflected in the strengths of love, kindness, and social intelligence. Justice is shown in the strengths of citizenship, fairness, and leadership. Temperance is exhibited in the strengths of self-regulation, prudence, forgiveness and mercy, and humility. Transcendence is demonstrated in the strengths of spirituality, hope, appreciation of beauty and excellence, gratitude, and humor. However, subsequent factor analytic studies have found variations in the number of these virtue categories and the sorting of the character strengths into the virtue categories. Psycho-biographical analyses have linked the development of character strengths of creativity, prudence, and hope to critical life events of leaders such as Steve Jobs, Carlos Ghosn, and Aung San Suu Kyi, respectively (Sosik, 2015). Some character strengths, such as spirituality and gratitude, are genetically predisposed, while the urban environment has been found to influence strengths such as creativity, kindness, and love.

The personal attributes (traits, cognition, affect) shown in Figure 1 represent the *sources* of leader character that are transmitted to followers through the leader's behaviors and reputation (Hannah & Avolio, 2011). Scholars have argued that character emerges and is transmitted when individuals impose their will upon their vices or negative personality traits (e.g. greed), cognitions (e.g. arrogance), affect (e.g. anger) and behaviors (e.g. laissez faire leadership). The will is a manifestation of habits of conduct that allows for the transmission of more positive sources of character, and the transformation of vices into virtues, such as over-indulgence into temperance. Willed introspection about what changes need to be made along with willed self-regulation support such character development.

As shown in Figure 1, the sources of character can have both indirect and direct effects on the outcomes or consequences of character (e.g. ethics, well-being, happiness, satisfaction, and effectiveness). The indirect effect occurs when sources of leader character are transmitted to the target (follower) via a leader's words or actions. Recent research suggests that such transmission of character validates and strengthens a moral self-identity or salient self-identity of being perceived as personifying the character strength of bravery. If a particular character strength (e.g. love of learning) is salient to the self-identity, a leader may attempt to display a behavior (e.g. intellectual stimulation) that exemplifies the strength. The direct effects of sources of character on followers and outcomes occur when leader character is transmitted through a leader's reputation. Leader categorization theory suggests that if a leader has a solid reputation for being brave and expecting courageous action from others, followers are likely to attribute bravery to the leader and act similarly in times of crisis.

The transmission of a character strength may or may not be received/perceived by the follower, depending on whether the follower appreciates the character strength, shares common values, or identifies with the leader. The transmission of character by leaders and reception of character by followers is likely to be moderated by characteristics of the follower and situation. For example, organizational or personal crises are likely to interfere with a leader's encouragement of love of learning through the display of intellectual stimulation because such crises are distractions that require attention and impede learning.

When followers perceive the leader as demonstrating a character strength that the leader wishes to exemplify, the transmission of virtuous behavior is said to be received or perceived by the follower as intended by the leader. Such perceptions of virtuous leader behavior by followers motivate action to contribute to the collective efforts to achieve the vision of the leader. Research has linked such perceptions to consequences including high performance of executives and middle managers, ethical leadership, happiness, satisfaction, and career, social, financial, physical, and community well-being (for reviews of this research, see Peterson & Seligman (2004) and Sosik (2015)).

Recent applications of research on character and leadership include assessments of character strengths manifesting virtues (VIA-IS; www.viacharacter.org), character development topics integrated in high school and university leadership courses (Sosik, 2015), and character development as the core of ethical decision-making in business programs (Crossan, Mazutis, Seijts, & Gandz, 2013). The latter application is noteworthy given its virtue-based approach to ethical decision-making whereby virtues guide relationships among leader intentions, behaviors, reflection, awareness, and judgment, given the leader's values, virtues and traits, and the situation that embeds them.

Future Considerations

Future directions in research, theory, and methodology concerning character and leadership can be drawn from the model shown in Figure 1. Regarding research, empirical studies conducted in countries influenced by Aristotelian, Confucian, and other cultures are needed to clarify the factor structure of character strengths that cluster among the virtues identified by Peterson and Seligman (2004). More field and lab studies are needed to test the proposed linkages among character sources, their transmission and reception of behaviors, and consequences proposed in Figure 1. Regarding theory, scholars are encouraged to integrate theoretical models drawn from the psychology, philosophy, sociology, theology, and management domains to identify moderating and mediating mechanisms to better explain how leader character influences follower and organizational outcomes. Figure 1 can also guide leadership research in better understanding why leaders fail due to character flaws, how authentic leadership processes operate, and when charismatic and transformational leadership can regress into their dark sides.

Regarding methodology, self-other ratings of character may overcome issues related to self-rating and common method biases. Pattern-oriented approaches to examining optimal profiles of leader character strengths are also warranted. Given that character may develop within unique dyadic leader-follower relationships embedded within teams, organizations, and societies, multilevel data analytic techniques should be used in future studies. Longitudinal studies are needed to explore how character strengths develop over time and influence the components of the model shown in Figure 1. Researchers should consider using event study methodology given the paucity of research attention placed on the situations and events that influence the source, transmission, and reception of character and leadership.

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Personality and Leadership

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Personality and Intelligence in Employee Selection

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Intelligence and personality are two constructs commonly measured during selection procedures. The term *selection*, in the context of industrial-organizational psychology, most often refers to the selection of new employees from a pool of potential applicants. The term may also refer to selecting employees for promotion, training opportunities, and rewards.

The primary goal of selection is to accurately predict future performance in order to select quality employees who will perform well on the job. To identify these top performers, a series of preemployment assessments are often administered to applicants. Intelligence (a term often used synonymously with cognitive ability) and personality assessments are two commonly used preemployment tools that have been shown to be valid predictors of job performance. First used in large-scale selection to screen military recruits during World War I (WWI), both personality and intelligence testing were later popularized in civilian hiring contexts.

Both cognitive ability and personality scales are based on the aggregation of many items. The score from a single item is not indicative of a person's level of intelligence or a given personality trait. It is only when these scores are averaged over many items that they are able to predict future work performance consistently and accurately (in technical terms, they possess greater levels of reliability and validity).

Neither personality nor intelligence assessments are often used alone. In fact, research shows that scores on cognitive ability and personality measures are largely uncorrelated, despite both being valid predictors of performance. This means that both personality and intelligence assessments possess incremental validity over the other. In layman terms, both assessments measure different aspects of job suitability, therefore, when these assessments are combined, the resulting scores more accurately predict future performance than either assessment alone. Personality and intelligence assessments are also often combined with other selection tools such as interviews, assessment centers, and situational judgment tests, in order to gain a more comprehensive view of the applicant, which results in better predictions of future performance.

Intelligence Testing

Intelligence is a person's ability to efficiently reason, solve problems, think logically, and learn from experience. Early inconsistencies in the predictive validity of intelligence testing caused people to doubt its utility for predicting job performance. This changed with Schmidt and Hunter's (1977) landmark article demonstrating that observed differences in validity were largely due to sampling error. Currently, the most widely accepted model of cognitive ability is Carroll's (1993) three-stratum model that proposes three hierarchical levels of intelligence, the apex of which is *g*, or general mental ability (GMA), which is subdivided into broad and narrow abilities.

Cognitive ability can be assessed in a variety of ways, including interviews, assessment centers, situational judgment tests, and paper and pencil or computerized exams. Past research has shown cognitive-ability tests to be the most consistent predictor of job performance across a variety of settings and occupations. Intelligence is especially predictive of performance in technical skills as well as the acquisition of job knowledge and success in training programs. This relation between intelligence and job performance is moderated by job complexity, with this relation becoming stronger for more complex jobs. A study by Hunter and Hunter (1984) reported validity coefficients ranging from .23 for unskilled labor to .58 for high complexity jobs. Despite the strong validities associated with cognitive-ability tests, they are still not as commonly used as interviews and references checks.

A major drawback of cognitive-ability tests is that results often present large subgroup differences, with people from minority groups scoring significantly lower than Whites. Blacks are commonly thought to score around 1.00 standard deviation lower than Whites, while Hispanics have been found to score about .83 standard deviations lower than Whites. However, research has suggested that these estimates may fluctuate with the complexity of the job. The *Uniform Guidelines on Employee Selection Procedures* states that the use of selection methods that present with adverse impact (or are unfairly biased against minority groups) are permissible only when the skills being tested are required on the job, and if using alternative methods of assessment would greatly reduce the selection systems' validity (or ability to predict performance). Therefore, use of intelligence tests may place an organization at risk for legal action. Consequently, some organizations are hesitant to use intelligence tests. Other reasons for resistance to using intelligence tests include the cost of purchasing, designing, or maintaining the test, the cost of administering the test, and the potential for negative applicant reactions.

Personality

There is no wide agreement among scholars on the definition of personality; however, in general it can be thought of as a combination of internal, intangible, and enduring characteristics that affect how people interact with their environment. The popularity of personality assessment as a preemployment tool has waxed and waned. Following the proliferation of personality testing in civilian settings after WWI, their use continued to increase before declining in the 1960s and 1970s. Doubt originated from psychologists like Walter Mischel, who argued that differences in behavior were due to minor situational differences, and not

personality. This was supported by inconsistencies in the ability of personality assessments to predict behavior over similar groups and situations. These inconsistencies, however, were later rectified by personality theorists in the 1980s using the principle of aggregation, which states that, although personality assessments perform poorly when trying to predict a single event, they do accurately aid in the prediction of behavior over time. For example, the results of a personality assessment are unlikely to accurately predict whether a given employee arrives late for his shift tomorrow, but they are far more accurate at predicting whether the person will consistently arrive late.

Many different models of personality have been presented in the scientific literature, but the Five-Factor Model has emerged as the most widely accepted model. Though the names of the five factors sometimes differ, they are most commonly known as extroversion, conscientiousness, openness, agreeableness, and emotional stability. This model of personality forms the basis of most currently used preemployment personality assessments.

A combination of primary research and meta-analyses have shown personality to be related to a number of organizational behaviors, including task performance, contextual performance, job choice, performance in training, leadership, organizational citizenship, and job satisfaction. Conscientiousness has emerged as the strongest predictor of performance of the five factors with validities in the .20s for predicting training and job performance.

Another vein of research in personality assessment investigates the existence of compound variables, such as consumer orientation, which are believed to be combinations of several Big Five domains that do not necessarily covary. For example, research has suggested that integrity is a compound variable incorporating aspects of conscientiousness, agreeableness, and (low) neuroticism. Research has shown that these compound variables often result in criterion-related validates that are higher than the validities of the traits they are thought to contain, suggesting that these compound variables are, at least in some situations, better predictors of job performance than their component parts.

Personality assessments are typically presented in a Likert-style format where participants are asked to rate how strongly they agree or disagree with a list of statements meant to tap into the five factors of personality. However, personality can also be accessed through a variety of different methods including interviews, situational judgment tests, and assessment centers.

A concern with the use of personality assessments, especially those using self-report, is desirable responding, where applicants intentionally distort their responses in order to represent themselves in a favorable light. Applying for a sales position, for example, an applicant may choose to strongly agree with statements such as "I enjoy interacting with people" based on the belief that the company will want sales representatives who are more extroverted.

Previous research has examined a number of item and response formats to limit the presence of desirable responding. This has included forced-choice formats where applicants are forced to endorse only one of two statements each endorsing a different personality trait. Other methods to limit desirable responding include the use of ideal point response models, computer adaptive testing, and biographical data (i.e. biodata) about previous life experiences, and the design of subtle questions. Previous research has found that asking participants to elaborate and support their responses on biodata measures leads to a

decrease in desirable responding, although, research is mixed as to whether faking on personality assessments actually results in substantial decreases in validity.

Debate over personality assessments has also centered around their bandwidth, which involves whether or not to use broad or narrow categories based on the criterion (outcome) being measured. Meta-analytic evidence suggests that in order to maximize validity, the personality traits being measured should be theoretically relevant to the criterion including having a similar bandwidth. For example, to obtain a global assessment of how skilled someone is at interacting with customers, a large compound trait that is theoretically related to dealing with customers, such as customer service orientation, should be used. However, if a narrow outcome is being assessed, such as impression management skills when dealing with upset customers, then a more narrow trait related to the measured outcome, should be assessed.

Personality tests used in selection are only meant to assess nonclinical levels of personality, and not clinical levels of depression or other personality disorders. Tests to diagnose personality disorders should not be used for preemployment selection and should only be used in selection once a conditional offer of employment has been made for occupations where the presence of such disorders presents a large safety concern, such as a pilot or police officer.

Current Work and Future Directions

Research continues on the development and use of personality and intelligence assessments for use in selection. Personality researchers continue to investigate various item formats and ways to minimize desirable responding on personality tests. Research has also begun investigating the possibility of nonlinear relations between personality and performance. One area of current research on the assessment of intelligence is investigating how to reduce the presence of subgroup differences. Additionally, work is being done to investigate how the administration of both cognitive and personality tests in an unproctored setting influences the reliability and validity of scores. Preliminary research has been mixed, but suggests that it is possible to deliver both intelligence and personality assessments online, without supervision, when steps are taken to limit access to cheating aids on cognitive tests. Applicant reactions to online selection testing have been largely positive, but more research is needed to assess subgroup differences, especially concerning age, and the acceptance of these new testing methods by human resource and selection officials.

See Also

Cognitive-Behavioral and Cognitive–Self-report Assessment Techniques
Individual Differences in Employee Performance
Intelligence-Personality Association, Assessment of
Response Styles, Issues of
Responsibilities of Testing Professional

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Sub-clinical Traits in the Workplace

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Personality psychology began with the study of disorder and dysfunction; the early pioneers' research on neuroticism, hysteria, and compulsion laid the foundation for the field. The high-water mark of this work was the 1939 publication of the *Minnesota Multiphasic Personality Inventory* (MMPI), a standardized psychometric test that became the gold standard for the objective assessment and diagnosis of psychopathology.

The MMPI was also used in workplace applications, principally personnel selection, with normal adult populations. Two trends in the latter part of the twentieth century discouraged this practice and also impacted the later study of personality disorders at work. First, the introduction of the Five Factor Model (FFM; also known as the Big Five) provided a taxonomy that greatly facilitated research, and it was focused on "normal" personality. An explosion of FFM-based research eclipsed research on abnormal personality at work. Second, the Americans with Disabilities Act, passed by the US Congress in 1990, defined psychopathology as a disability. This made it potentially unlawful to deny people employment based on scores on psychiatric screening devices.

However, two streams of workplace theory and research have focused on a middle ground between normal personality and abnormal pathology. Each concerns individual differences that are distinct from the FFM and clinical disorders, and thus may be referred to as "sub-clinical traits." Sub-clinical traits are associated with counterproductive behavior, but are not incapacitating to social functioning or debilitating to personal well-being.

Stream 1: The Dark Side of Personality

In 1990, Robert Hogan published *The Dark Side of Charisma*, a chapter that explained how some leaders use their charm and influence to advance their self-interests by manipulating and deceiving others. This dark side of their public personas, Hogan argued, is hard to identify because it is usually concealed by well-developed social skills that mask the selfish intent.

Soon after, Robert and Joyce Hogan elaborated the notion of the dark side to explain how smart, hard-working, and accomplished executives sometimes wind up getting fired. After a careful review of an emerging and largely qualitative research literature on "career derailment," the Hogans observed that the recurring themes explaining why senior managers get fired concerned interpersonal tendencies that interfered with the ability to maintain relationships, motivate employees, build a team, and make good decisions. Moreover, they noted that these troubling tendencies resembled the 11 standard personality disorders listed in the *Diagnostic and Statistical Manual of Mental Disorders IV* (DSMV). The Hogans used the DSM personality categories as a heuristic to define ordinary patterns of counter-productive tendencies, explaining that dark traits are not pathological disorders because they do not impair significant life functioning as required for a clinical diagnosis. They proposed dark-side traits as a part of normal personality that nonetheless can interfere with relationships and judgment at work.

The theoretical basis for this conception of dark-side traits can be traced to Karen Horney's influential observation that normal and pathological personalities reflect differences in degree, not differences in kind. In this view, disorders are not qualitatively distinct from normal tendencies; they are the same tendencies only in more extreme, rigid, and inflexible form, which increases the probability that they will be displayed in inappropriate social settings or to an excessive degree given the circumstances. It is this uncontrollable quality that makes disorders debilitating. Thus, dark-side traits can be viewed as extensions of normal personality traits – like those covered by the FFM dimensions of extraversion, agreeableness, conscientiousness, stability, and openness – that expand to sub-clinical levels but stop short of the extreme impairment that would classify as a clinical disorder.

The Hogans developed a psychometric test, the *Hogan Development Survey* (HDS), to measure the 11 dark-side traits as continuous dimensions of sub-clinical personality. Evidence for the construct validity of the conceptualization of the dark-side dimensions as sub-clinical traits can be found in significant, but moderate-sized, correlations with analogous DSM disorders as measured by the MMPI. Support for their conceptualization as extensions of normal personality is found in similarly significant, but moderate-sized, correlations with the dimensions of the FFM. The significant correlations indicate that the dark-side traits overlap to some degree with the MMPI disorders and the FFM dimensions, but the moderate size of the correlations suggests that they do not span identical ranges on the underlying continua.

The 11 dimensions of the dark side measured by the HDS (and their associated DSM disorders and FFM dimensions) are: excitable (borderline, low stability); cautious (avoidant, high conscientiousness); skeptical (paranoid, low agreeableness); reserved (schizoid, low extraversion); leisurely (passive-aggressive, high agreeableness); bold (narcissism, high stability); mischievous (antisocial, low conscientiousness); colorful (histrionic, high extraversion); imaginative (schizotypal, high openness); diligent (obsessive-compulsive, high conscientiousness); dutiful (dependent, high agreeableness).

The 11 dimensions empirically cluster into three higher-order factors that can be understood in terms of their self-protective and self-enhancing intent. The first five, excitable through leisurely, represent strategies used to keep others at a safe distance; the next four, bold through imaginative, represent strategies for captivating others through seduction and charm; and the last two, diligent and dutiful, represent strategies

for ingratiation by complying with the standards and expectations of others. According to Hogan, people express their dark sides when they are not being vigilant about regulating their behavior – when they are stressed, under pressure, inebriated, or simply don't care about the impression they make.

The development of a theory and measurement base for the dark side has stimulated the creation of similar personality inventories (there are at least two others) and a growing body of empirical research on these sub-clinical traits at work, largely concerning incompetent management and ineffective leadership.

Stream 2: The Dark Triad

Separate from Hogan's work on the dark side of personality, psychologists have studied the workplace effects of several narrowly defined dysfunctional dispositions originally identified in the clinical literature. However, this research has also maintained that these traits are common at sub-clinical levels in normal populations. Three traits have been particularly prominent in workplace research – narcissism, psychopathy, and Machiavellianism. Paulhus and Williams referred to them collectively as the *dark triad* because "individuals with these traits share a tendency to be callous, selfish, and malevolent in their interpersonal dealings."

Freud's psychoanalytic theory of narcissism inspired the creation of self-report questionnaires to assess a sub-clinical level of excessive self-absorption that interferes with caring about other people. The most popular of these, the Narcissistic Personality Inventory (NPI) developed by Robert Raskin and colleagues, measures two factors: a grandiose (inflated) sense of self and entitlement (expecting special treatment).

Hervey Cleckly's 1941 book, *The Mask of Sanity*, popularized the concept of psychopathy based on case studies of institutionalized men who showed no remorse for harming others. Robert Hare subsequently developed the Psychopathy Checklist (PCL), an inventory completed by a clinical psychologist on the basis of a semi-structured interview and review of official (usually criminal) records. The PCL was expressly created to make clinical diagnoses and to be used in criminal trials. Two self-report questionnaires have been developed to assess sub-clinical levels of psychopathy: the Psychopathic Personality Inventory (PPI), which measures abusive domination, impulsive antisociality, and coldheartedness, and the Self-report Psychopathy Scale III (SPS), which is based on the PCL and measures manipulation, a lack of empathy, social instability, and criminal tendencies.

Based on Niccolò Machiavelli's *The Prince*, a Renaissance treatise on how rulers should govern their subjects through duplicity and exploitation, and their study of political and religious extremist groups, Richard Christie and Florence Geis developed the construct of Machiavellianism as a form of malignant manipulation. Their self-report questionnaire, the refined Mach-IV, measures three factors: deceptive influence tactics, a cynical view of other people, and low ethical standards that justify the immoral treatment of others.

Although there are other measures of narcissism, psychopathy, and Machiavellianism, the foregoing are generally considered definitive. And although other dark traits have been studied, such as aberrant self-promotion and everyday sadism, the dark triad has been studied the most at work.

The traits in the dark triad are moderately and positively inter-correlated but also are sufficiently independent to be considered distinct. Further, they are moderately correlated with the dimensions of the FFM – most consistently, low agreeableness and low conscientiousness, reflecting their antisocial qualities. However, these correlations are small enough to indicate they are distinct from normal personality as defined by the FFM.

Findings

There is a cumulative body of empirical research on the effects of the dark side of personality and the dark triad in the workplace. The two streams of research have proceeded in relative isolation from one another, so there is little research on how the two systems relate or compare in predicting work processes and outcomes. Further, organizational research in the two traditions has taken somewhat different paths: studies of the dark side have focused almost exclusively on leadership and managerial performance, whereas studies of the three dark triad traits have examined a broader population that also includes employees.

There is considerable construct validity evidence for each set of sub-clinical traits. Machiavellianism is associated with lying and seeking revenge. Narcissism is associated with inflated self-evaluations and with hostility and aggression – especially under conditions of ego threat, and psychopathy is associated with mistreatment of others, including criminal mistreatment. The 11 dimensions of the dark side of personality similarly correlate in consistent ways with observer ratings of conceptually related work behaviors.

Meta-analytic findings confirm the robustness of the effects of sub-clinical personality at work. One study of the results from 245 independent samples found that all three of the traits in the dark triad were related to counterproductive work behavior and that Machiavellianism and psychopathy were related to lower job performance. Together, the dark triad traits explained a moderate amount of variance in counter-productivity, but less variance in job performance. A separate meta-analysis of 256 studies using the HDS found that all 11 dimensions of the dark side of personality were negatively related to at least one of seven dimensions of managerial performance (e.g. Leading others, Dependability, Adaptability, Interpersonal skill, Problem solving).

Complexities

Although the dark side and dark triad traits are generally negatively related to desirable processes and outcomes in the workplace, they are sometimes found to relate differently to performance. Some studies have reported that low levels of dark-side traits are unrelated to performance, but scores ranging from average to high are increasingly associated with lower performance. Other studies have shown that some dark traits are actually positively associated with some work outcomes.

For instance, a meta-analysis of narcissism found it to have a positive, linear relationship with leadership emergence (being nominated or hired for a leadership role) but an inverted, U-shaped curvilinear relationship with leadership effectiveness (performing well in a leadership role). Evidently there is an optimal level of positive self-regard near the middle of

the distribution that is useful in inspiring confidence and influencing others, but beyond that point higher levels of narcissism become increasingly detrimental to effective leadership. However, the positive relationship with leadership emergence indicates that higher levels of narcissism are associated with greater advancement into leadership roles. These differential effects suggest that those who score very high on narcissism may be able to charm and dazzle their way into leadership jobs, but once in higher office their self-absorption prevents them from leading effectively. In other words, some seemingly charismatic leaders may be hired for the very same factors that undermine their leadership and ultimately get them fired.

More research is needed to untangle the complex effects of sub-clinical traits in the workplace. It appears that for some outcomes, these dark, self-interested tendencies have negative effects, but for others they may be beneficial. It will be necessary to distinguish workplace outcomes that benefit the individual (e.g. promotion, leadership emergence) from those that benefit the organization (e.g. effect on coworkers, job performance, leadership effectiveness) over time and to consider the possibility that there is an optimal level of sub-clinical traits, where both extreme high and extreme low scores have undesirable consequences.

See Also

Antisocial Behavior, Assessment of
Big Five
Dark Triad
Narcissism, Assessment of
Narcissistic Personality Disorder
Personality and Leadership
Psychopathy

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Bullying and Personality

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Bullying is an intentional aggressive behavior that is repeated over time and marked by an imbalance of power between involved parties, thus creating a bully and bullying victim. Bullying behaviors are most common among youth, but can also occur between adults, for instance, in the workplace. Bullies may engage in proactive or reactive aggressive behaviors. *Proactive aggression* occurs without provocation, whereas *reactive aggression* is in response to a trigger, such as being picked on. There appear to be a wide range of personality factors, such as neuroticism, hostile attribution of intent, and narcissism, that contribute to an individual's propensity to bully others, but researchers have not been able to identify a single cohesive profile.

The Big Five

Perhaps the most commonly discussed aspects of personality are the Big Five personality traits (e.g. openness, conscientiousness, extraversion, agreeableness, neuroticism). Limited research has examined the role of these traits in bullying. A study examining cyber-bullying (bullying behaviors conducted using technology) found that cyberbullies scored lower on conscientiousness and higher on neuroticism as compared to their peers (Kokkinos, Antoniadou, Dalara, Koufogazou, & Papatzki, 2013). Bullies also scored higher on extraversion than their peers, which may reflect an ability to assert themselves socially (Tani, Greeman, Schneider, & Fregoso, 2003). Unsurprisingly, bullies scored lower on agreeableness than peers who intervened and tried to help the victim (Tani et al., 2003). Within the extant literature to date, it appears that only openness to experience is unrelated to bullying behaviors.

The Dark Triad

Researchers have identified a collection of personality traits that many perpetrators of bullying endorse known as the *dark triad*. The dark triad consists of Machiavellianism, sub-clinical psychopathy, and sub-clinical narcissism, which are associated with increased aggression that may be contributory to bullying (Paulhus & Williams, 2002). Specifically, the dark triad has been linked with increased physical aggression (narcissism and psychopathy) and relational aggression, or aggression that affects one's social relationships (Machiavellianism; Kerig & Sink, 2010).

Among the three constructs, psychopathy appears to have the strongest link with bullying behaviors followed by Machiavellianism and, lastly, narcissism (Baughman, Dearing, Giammarco, & Vernon, 2012). Youth with higher levels of psychopathic traits (e.g. callousness, lack of empathy) displayed more aggression (e.g. administering a potentially harmful sound to a confederate posing as a victim) than youth in the low psychopathy group. However, there was no difference when the youth with higher levels of psychopathic traits were aware of the victim's distress (e.g. comments made to the participant by the confederate about being worried the noises were too loud), suggesting that awareness of the victim's distress level might inhibit aggressive behavior (Van Baardewijk, Stegge, Bushman, & Vermeiren, 2009). The researchers suggested that interventions designed to increase empathy might help to mitigate the level of aggression displayed by youth who exhibit psychopathic traits (Van Baardewijk et al., 2009). Callous-unemotional traits (i.e. disregard for others, decreased affective response) are also understood as major components of psychopathy and have been directly linked to increased bullying behavior in adolescents (Ciucci & Baroncelli, 2014).

Machiavellianism has been most commonly understood as a cold and manipulative style of interacting with others (Paulhus & Williams, 2002). Machiavellianism is related to adolescent bullying behavior, particularly indirect forms of bullying behavior, such as spreading rumors. Youth who bully others scored higher on Machiavellianism as compared to their uninvolved peers. Bullies with higher scores on Machiavellianism are thought of as "adaptive bullies" in that they are generally liked by peers even though they exploit their victims (Wei & Chen, 2011).

Narcissism is a multidimensional construct that consists of feelings of grandiosity and superiority, a sense of entitlement, exploitation of others for personal gain, a lack of empathy for others, and an excessive need for admiration from others (Martinez, Zeichner, Reidy, & Miller, 2008). Past research has linked narcissism with aggressive behaviors in adult samples and among youth. A longitudinal study conducted in the Netherlands found that narcissistic boys were more likely than their peers to display both elevated direct and indirect bullying behaviors (Reijntjes et al., 2015). Narcissistic boys who engaged in bullying concurrently scored high on social dominance, or the degree to which an individual prefers social hierarchies that result in the domination of lower-status groups (Pratto, Sidanius, Stallworth, & Malle, 1994). Bullies expressed a higher desire to be socially dominant, which suggests that bullies might score higher on measures of social dominance orientation, a personality trait that reflects an individual's preference for group-based discrimination (SDO; Olthof, Goossens, Vermande, Aleva, & van der Meulen, 2011; Pratto et al., 1994). Among adults, higher scores on SDO were positively correlated with bullying behaviors in the workplace (Parkins, Fishbein, & Ritchey, 2006).

Hostile Attribution of Intent

A chronic hostile attribution of intent is a dispositional tendency to perceive hostile intent from ambiguous actions by others (Dodge, 2006). For example, an individual who exhibits a hostile attribution of intent might interpret a neutral interaction with another as being intentionally hostile. Aggressive youth are more likely to have a hostile attribution of intent as compared to unaggressive peers (De Castro, Veerman, Koops, Bosch, & Monshouwer, 2002). Both bullies and victims scored higher on a measure of hostile attribution of intent compared to peers who were not victims or bullies. The higher levels of hostile attribution of intent displayed by bullies and victims may result in increased aggression. Higher levels of hostile attributions were negatively associated with traditional aggression (e.g. physical harm), which supports the notion that physical bullying can be a form of proactive aggression as youth who exhibit traditional aggressive behaviors do so regardless of the intent of the victim (Pornari & Wood, 2010). Additionally, hostile attributions of intent were positively related to victimization, suggesting that victims of bullying might sometimes react aggressively (reactive aggression) to provocation (Pornari & Wood, 2010).

See Also

Aggression, Personality Correlates
Dark Triad
Hostility, Personality Correlates

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Social Skills in the Workplace

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Social skills in the workplace refer to the broad range of skills used in communicating with others and in creating and maintaining good interpersonal relationships at work. Although many scholars and professionals recognize the importance of good social skills in the workplace, there is surprisingly little research on the topic. One reason for the paucity of research is the lack of an agreed-upon framework or theory for conceptualizing and measuring workers' "social skills." Instead, scholars have focused on broad constructs such as social intelligence, emotional intelligence, and nonverbal communication skills, that are actually composites of individual social and interpersonal skills. Other researchers have studied only one or a few individual social skills, such as listening ability, assertiveness, empathy, and others. The latter approach tells us about the effectiveness of the particular skill(s), but does not answer questions about broader, "clusters" of social skill.

One model of very basic communication skills suggests that there are three types of skills: skills in expressing oneself; skills in receiving others' communications; and skills in regulating and controlling the flow of communication. These three skills operate in two domains: verbal/social communication, consisting of written and spoken language and knowledge of social rules and conventions; and, nonverbal communication that involves the expression of emotions, affect, interest, and displays of dominance-submissiveness (Riggio, 1986). A self-report measure, the Social Skills Inventory, assesses these six basic social skills (Riggio & Carney, 2003).

Other scholars have attempted to create taxonomies for the various social, or interpersonal, skills that are used in the workplace to develop good working relationships with colleagues and team members, and to facilitate communication between supervisors and subordinates. These taxonomies range from two to six or more categories with dozens of specific types of social skills in these categories (Beenen & Pichler, 2016).

One such taxonomy divides interpersonal skills into two categories: communication skills and relationship-building skills. Communication skills include *active listening, oral communication, written communication, assertive communication* and *nonverbal communication*. Relationship-building skills include *cooperation and coordination, trust, intercultural sensitivity,*

service orientation, self-presentation, social influence, and *conflict resolution and negotiation* (Klein, DeRouin, & Salas, 2006).

An important issue concerns the measurement of social skills in the workplace. One approach is to take an individual differences perspective – attempting to assess people's possession of these social skills and assuming that these are used in the workplace to build and maintain good relationships with coworkers and others. Individual differences in social skills are often measured through self-report or ratings by others who know, or who have worked with, the individual. A second approach is to measure the behavioral display of social skills at work – giving people evaluations or scores on how well they demonstrate each skill in their workplace interactions. The individual differences approach is useful in determining persons who have potential to use their workplace social skills effectively, while the latter approach allows assessment of whether the individual actually displays effective social skills at work.

Another way to understand social skills is to view them as a manifestation of different forms of intelligence – in particular, emotional and social intelligences. Emotional intelligence (EI) is the ability to identify, express, understand emotions, use emotions in thinking and problem solving, and ability to regulate positive emotions, both in oneself and in others (Matthews, Zeidner, & Roberts, 2002). Emotional intelligence has been conceptualized both as a set of abilities or skills – in what is called the *abilities model* – or as a combination of abilities and personality traits such as empathy and sensitivity, what is called the *mixed model* (Mayer, Salovey, & Caruso, 2000). The abilities model is most aligned with social skills in the workplace. The measurement of the abilities model of EI uses a performance-based measure with right and wrong answers asking test-takers to identify emotions accurately, or demonstrate knowledge about emotional situations. In that way, it is very much like a regular intelligence test. EI measures based on the mixed model are more similar to self-report personality tests. Both measurement approaches have particular strengths and drawbacks and the construct of emotional intelligence remains somewhat controversial in academic circles, with critics arguing that EI does not constitute a true "intelligence."

Emotional intelligence became a very well known construct as popular books were written extolling the importance of emotional intelligence in everyday life and in success in the workplace (Goleman, 1995, 1998). Practitioners were drawn to emotional intelligence because it was a way to more easily focus on the complex nature of social skills that are used to maintain social relationships, particularly at work. For scholars, however, emotional intelligence is a controversial topic because of the competing models of emotional intelligence (i.e. *abilities* vs. *mixed* models) and the difficulty in measuring emotional intelligence. Enthusiasm by practitioners and trainers over this new construct, however, has led to the creation of programs to develop emotional intelligence, and these have became quite common in employee development and training programs.

While emotional intelligence deals with social skills related to the emotional, or "feeling" aspects of relationships and workplace interactions, the construct of social intelligence attempts to capture the more "thinking" aspects of workplace interactions and relationships. Marlowe (1986) defines social intelligence as "the ability to understand the feelings, thoughts, and behaviors of persons, including oneself, in interpersonal situations and to act appropriately on that understanding" (p. 52).

One model of social intelligence suggests that its two main components are *social perceptiveness* and *behavioral flexibility* (Zaccaro, Gilbert, Thor, & Mumford, 1991). Social perceptiveness is defined as "the capacity to be particularly aware of and sensitive to needs, goals, demands, and problems at multiple levels, including individual members, relations among organizational subsystems, and interactions" (Zaccaro, et al., 1991, p.321). Behavioral flexibility is defined as "the ability and willingness to respond in significantly different ways to correspondingly different situational requirements" (p. 322). This would mean that socially intelligent persons would adapt easily to the various workplace situations they might find themselves in.

Besides being socially perceptive and behaviorally flexible, there may be other social skills involved in social intelligence, including knowledge of social norms and conventions, ability to articulate and speak clearly, skills in persuasion, effective and active listening, and the list goes on. The Riggio (1986) model discussed earlier suggests that basic social intelligence can be measured through the self-report of three social skills: *social expressiveness*, or ability to speak and engage others in conversation; *social sensitivity*, which is ability to understand and decode verbal communications, a knowledge of social norms, and ability to "decode" social situations, and; *social control*, which consists of sophisticated social role-playing skill. Another term used to describe the social skills that comprise social intelligence is *social competence*.

Another model that incorporates both emotional and social intelligences, but does not explicitly use the term "intelligence" focuses on emotional and social *competencies*. This is more closely aligned with the notion of these social and emotional abilities representing different forms of social skills. Moreover, this model has been applied particularly to the workplace, and especially to managers/leaders in organizations (Boyatzis, Gaskin, & Wei, 2015). According to this model, emotional competencies are very similar to the elements of emotional intelligence, including emotional self-awareness, emotional self-control, but also includes *achievement orientation* and having a *positive outlook*. Social competencies include social awareness (knowledge of how to handle relationships), influence and conflict management, and teamwork. There has been much less research on social intelligence and social competencies in comparison to emotional intelligence, primarily because there are few accepted and widely used measures of social intelligence.

The Development of Workplace Social Skills

As noted, the development of the constructs of emotional intelligence and social intelligence, and the popularity of viewing skills/competencies as forms of intelligence, have spurred the creation of programs to train and develop both emotional intelligence and social intelligence. Yet, these training programs vary greatly in terms of both the conceptualization of the components of emotional and social intelligence and the means for developing the individual components. Moreover, there is little research on the efficacy of these types of training programs.

An additional approach to workplace social skill training programs is to focus on specific workplace skills. Most of these programs focus on certain techniques (such as active listening or conflict resolution strategies) designed to give people the social skill tools to deal

with others in the workplace and maintain good interpersonal relationships. Training programs may also target public speaking, presentational skills, and networking skills. These types of programs are a common part of employee training in many organizations.

There is a general belief that social skills are particularly important for workplace managers and leaders. As a result, the lion's share of training resources is devoted to managerial/leadership training and there are numerous programs offered as management or leadership development that focus on developing interpersonal and social skills. A recent review of some of the better-known programs suggested "best practices" for developing leader interpersonal and social skills (Murphy, Putter, & Johnson, 2014). These include classroom-based training, the use of feedback by coaches and mentors, and using on-the-job experiences for developing leader workplace social and interpersonal skills.

Classroom-based training for social skills is cost effective because it can be done in large groups, but "hands-on," experiential learning exercises (e.g. role-playing, in-class team projects) tend to enhance the lecture format learning. Practice/homework outside of the classroom is also important.

Another technique for social skill development involves the use of coaches and/or mentors who can model effective employment of social and interpersonal skills, provide feedback, and note areas of deficiency or strength. Coaches/mentors may actually "shadow" their trainees in order to observe their use of social skills in the workplace – using this information to make suggestions for improving workplace social skills. This is more costly than classroom-based training, but offers development opportunities tailored particularly to the individual.

A third type of social skill development programs uses challenging workplace assignments that require workers to utilize and hone their social and interpersonal skills. This may include rotating job assignments, giving employees demanding leadership responsibilities, or requiring them to make presentations. Team projects can also be used to help develop team social skills and skills in conflict management and negotiation. Feedback about team members' performance and social skill strengths and deficiencies are noted after the project is completed.

In conclusion, workplace social skills are critical to the effective functioning of organizations, and they are a major part of an important skill set for employees and managers/leaders. The complexity of workplace social skills has made it a difficult topic to research, and attempts have been made (and continue to be made) to try to develop an agreed-upon framework, or model, for better understanding these important variables. The importance of workplace social skills has no doubt led to the large amount of resources that are devoted to improving employee social and interpersonal skills.

See Also

Emotional Intelligence
Emotional Intelligence, Correlates of
Emotional Intelligence in the Workplace
Social Intelligence

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Personality and Workplace Deviance

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Counterproductive work behaviors (CWBs; also called workplace deviance) are intentional behaviors that harm the organization or its members that are contrary to the organization's legitimate interests. CWBs include a wide variety of acts, such as theft, sabotage, destruction of property, substance abuse at work, absenteeism, and intentionally unsafe behavior – but not accidents (Gruys & Sackett, 2003). Personality traits influence all aspects of the processes that lead to counterproductive behaviors including selecting environments that allow opportunities for CWBs, interpreting the intentions and actions of others (e.g. hostility), and the capacity for controlling one's thoughts, emotions, and behaviors.

Traits

The Big Five personality traits consist of five major dimensions along which we generally differentiate individuals in terms of their behavioral tendencies: extraversion, emotional stability, agreeableness, conscientiousness, and openness to experience. Lower levels of conscientiousness, agreeableness, and emotional stability are associated with higher levels of CWBs (Berry, Ones, & Sackett, 2007). These relationships tend to be magnified when individuals have greater autonomy on the job (Kaiser & Hogan, 2006). Different types of CWBs have differential relationships with personality traits. For example, CWBs targeting other individuals are more related to lower levels of agreeableness, whereas CWBs targeting the organization are more related to lower levels of conscientiousness. These relationships are not necessarily linear. For both emotional stability and conscientiousness there is evidence that extremely high scores can also be associated with workplace deviance because the individual may lack empathy or be overly perfectionistic (Le et al., 2011). Higher levels conscientiousness and lower levels of negative affect also tend to mitigate the negative effects of job stress on workplace deviance (Bowling & Eschleman, 2010).

The relationships observed between personality traits and CWBs can also be impacted by methodological factors. For example, the effects of personality on CWBs and withdrawal behaviors can be grossly underestimated or even have their direction reversed when poorly abbreviated measures are used in lieu of more robust measures (Credé, Harms, Nierhorster, & Gaye-Valentine, 2012).

These five dimensions do not subsume the other domains of personality (e.g. motives, abilities, values). Next, we review a number of other models and personality characteristics that also predict workplace deviance.

Attachment Styles

Attachment theory argues that all individuals are born with the desire to seek proximity to others in times of distress to enhance their survival prospects (Harms, 2011). A history of successfully attaining the aid of attachment figures (initially parents, but later romantic partners and managers) leads individuals to develop a sense of security and a willingness to trust others. Repeated failures to attain help when it is sought results in the individual internalizing the belief that either extreme emotional outbursts are needed in order to have one's needs recognized and met (an anxious style) or that there is little point to developing close relationships with others (an avoidant style). Individuals with insecure or dysfunctional attachment styles are more prone to lash out at their coworkers and organizations when their attachment needs were not met.

Dark Personality

Dark personality concerns traits that can lead individuals to derail in their careers or daily lives. These traits are more likely to be activated in periods of stress when the individual is unable to hold back their dark impulses by adhering to social norms and expectations (Hogan & Hogan, 2001). These are characteristics associated with a desire to harm others. There is an increasing body of research linking dark personality constructs such as narcissism, Machiavellianism, psychopathy, and aggression to workplace deviance (Spain, Harms, & LeBreton, 2014). It should be noted, however, that recent research has found that dark traits are not necessarily negative and can be associated with positive training and performance outcomes (Harms, Spain, & Hannah, 2011).

Cognitive Ability

Workplace deviance was positively associated with cognitive ability in a large, longitudinal community sample (Roberts, Harms, Caspi, & Moffitt, 2007). More recent work has found similar positive effects, but some have also found negative relationships between these variables (Dilchert, Ones, Davis, & Rostow, 2007). This apparent contrast can be partially explained by study design. Within specific occupations, cognitive ability is associated with lower levels of workplace deviance. However, across occupations, it can be positively associated with workplace deviance because cognitive ability is also positively associated with attaining jobs with more autonomy and more opportunities to engage unethical behavior (e.g. coming late, yelling at other employees, access to money and secure areas).

Other Forms of Deviance

Destructive Leadership

Destructive leadership is a special form of workplace deviance that exists within the role of a leader (Krasikova, Green, & LeBreton, 2013). As could be expected, destructive leaders have been shown to negatively influence the health and productivity of their subordinates. Although there has been some work showing that dark personality traits such as Machiavellianism are associated with higher levels of destructive leadership, most research on personality has investigated what types of people are typically victimized by these individuals. For example, individuals who report higher levels of abusive supervision tend to be lower on agreeableness and conscientiousness and higher on neuroticism. One reason why individuals who fit this profile may be more likely to experience abuse or bullying is because this profile is associated both with underperformance, and a tendency to evoke more negative reactions from others as a result of their chronic complaining and resisting the demands of others (Wang, Harms, & Mackey, 2015).

Of the dark personality traits, narcissism has been the most thoroughly examined with regards to leadership outcomes. The relationship between narcissism and leadership is nonlinear. Extremely low levels of narcissism can be associated with ineffective leadership, but very high levels of narcissism can also result in toxic forms of leadership.

Job Withdrawal

Withdrawal behaviors (e.g. coming in late, working slowly on purpose, faking sick to take time off) are a special form of workplace deviance. Meta-analytic evidence suggests that CWBs and withdrawal behaviors share many of the same antecedents (Zimmerman, 2009). Higher levels of turnover intentions are associated with lower levels of conscientiousness, emotional stability, extraversion, and agreeableness. Actual turnover is related to lower levels of conscientiousness, emotional stability, and agreeableness. Outside of the Big Five framework, withdrawal behaviors have also been shown to be related to higher levels of anxious attachment (Harms, 2011).

Accidents and Safety

Work accidents and injuries have been linked with higher levels of neuroticism and lower levels of agreeableness as well as low levels of conscientiousness and higher levels of risk-taking (Christian, Bradley, Wallace, & Burke, 2009). Although workplace accidents themselves are not considered CWBs, the effects of some personality traits on these outcomes was shown to be mediated through safety behaviors that suggests that potentially there was willful disregard for safety procedures.

Effects of Workplace Deviance on Personality

Although most research linking personality to workplace outcomes examines personality as a causal agent, there is an emerging literature addressing how workplace experiences change personality. For instance, individuals who commit more CWBs are not only

lower on conscientiousness and emotional stability, but that they also fail to experience positive growth on these characteristics as they age; over time they increasingly fall behind their peers who are increasing in conscientiousness and emotional stability (Roberts, Walton, Bogg, & Caspi, 2006). This developmental pattern, where traits relevant to a particular behavioral pattern are, in turn, changed by those behaviors is known as the correspensive effect.

Future Directions

For both workplace deviance and personality, there are recent developments expanding what constructs are being investigated in research. For example, some behaviors may not be immediately recognized as forms of workplace deviance, but can nonetheless have negative long-term consequences for organizations. For example, silence or refraining from calling attention to illegal or immoral practices or unethical pro-organizational behaviors whereby individuals commit deviant acts with the goal of helping their organization. To date, there has been no research linking these outcomes to personality characteristics.

For personality, much of our understanding of personality processes has been brought under scrutiny by the rise of functionalist accounts of personality (Wood, Gardner, & Harms, 2015). Functionalist accounts insist on determining *why* behaviors happen rather than *what* typically happens (e.g. trait theory). Because of this, these models can potentially lead to more precise selection tools and interventions to prevent incidents of workplace deviance. Thus far, this approach has not been examined in real-world settings.

Concluding Statement

Personality characteristics and other individual differences such as cognitive abilities have substantial relationships with workplace behavior. Because of their discretionary nature, deviant work behaviors are particularly strongly related to individual differences. While the existence of these relationships is clear, the reason for their existence needs further exploration. In particular, mere documentation of these relationships does not provide any levers for organizational interventions to mitigate deviance and its consequences.

See Also

Aggression, Personality Correlates
Big Five
Dark Triad
Narcissistic Personality Disorder

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Integrity Testing and Counterproductive Work Behavior

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Integrity tests – psychological measures designed to identify and provide an evaluation of individuals that are more likely to engage in counterproductive work behaviors (CWB) – have been an integral tool used in employee selection for over 60 years (Ones, Viswesvaran, & Schmidt, 2012). CWB affect organizations in a number of ways, producing financial repercussions, influencing psychological well being of their employees, and altering their social impact. Economic costs associated with excessive absenteeism, theft, sexual harassment, and workplace violence are quite severe and place an unnecessary strain on the organization. Putting aside financial losses, organizations are well aware of the toxic psychological impact CWB have on their employees. Depression, anxiety, lowered job satisfaction, and even fears of coming into work have all been linked to CWB experienced by employees and are cause for concern to *any* organization. Similar to crime, the societal impact of CWB is detrimental and an abundance of CWB within an organization could tarnish its reputation with the general public.

CWB are defined as volitional behaviors that detract from the well-being and goals of an organization or its stakeholders (Ones & Dilchert, 2013). CWB have been defined and measured in a multitude of forms. Common synonyms of broad level CWB include antisocial behaviors, workplace deviance, organizational-retaliation behaviors, insidious workplace behaviors, and still others. Narrower and more restricted measures and constructs have burgeoned since the early 2000s and include labels such as abusive supervision, social undermining, cyber-loafing, among others.

Structure of CWB

Until the mid-1990s, many of these deviant behaviors were studied in isolation from each other, which resulted in disparaging conclusions, such as low base-rates of occurrence and poor predictability. Although some researchers have acknowledged and documented many

manifestations of CWB (e.g. property deviance, production deviance, theft, and broad CWB (Ones, Viswesvaran, & Schmidt, 1993), systematic creation and testing of CWB taxonomies did not occur until 1995.

Robinson and Bennett (1995) proposed a taxonomy linking various CWB forms under one umbrella. In their taxonomy, targets constitute a major distinguishing feature between different CWB forms; namely, CWB was partitioned into deviant acts committed against people and deviant acts against the organization. Following their taxonomy, Bennett and Robinson developed a scale that measures interpersonally and organizationally directed deviance (Bennett & Robinson, 2000). Subsequent researchers have proposed a greater number of more specific CWB dimensions. For example, Spector and colleagues (Spector et al., 2006) parsed the construct into five facets: abuse, production deviance, withdrawal, theft, and sabotage. Essentially, they relabeled interpersonal deviance as abuse and splintered organizational deviance into the remaining four facets. Despite the difference in factor structures, researchers unambiguously agree that these behaviors are all positively correlated; people that exhibit one behavior are likely to also exhibit others. In other words, there is a general factor of CWB (Stanek, Ones, & McGue, 2017).

Expanding beyond the realm of work, CWB are highly related to other forms of deviance across all aspects of life. Research has shown that a broad general factor, named common counterproductivity, is strongly related to deviance in school (high school and college), work, nonwork interactions (e.g. traffic violations, fights at a bar, failing to repay debts, etc.), and even adult alcohol/drug use (Stanek et al., 2017). Nonwork counterproductivity has recently been branded off-duty deviance.

Taxonomies like Bennett and Robinson's and Spector and colleagues' have helped bridge the gap between the separate streams of CWB research. However, one group of behaviors is not found under these prominent conceptualizations of CWB. Drug and alcohol abuse have been largely omitted from the various CWB taxonomies. These behaviors have lower relationships with other deviant behaviors and are the least prominent markers of the general CWB factor.

Antecedents of CWB

In an effort to reduce the occurrence of these behaviors, psychologists have studied their correlates using both situational and individual difference perspectives (Mercado, Dilchert, Giordano, & Ones (2018). The former is useful in designing interventions and environments where CWB can be controlled, whereas the latter is useful for identifying the individuals with reduced propensities to engage in CWB, regardless of the situational pulls and pushes. Among individual differences variables, personality variables are particularly potent predictors (Berry, Ones, & Sackett, 2007). Among the Big Five, conscientiousness, agreeableness, and emotional stability have the largest relationships with the various forms of CWB. Of the three, conscientiousness has the largest and most robust correlation. Interestingly, these three factors of personality comprise the meta-trait stability/socialization, also referred to as factor alpha, which has been described as a person's propensity to get along with others.

Other notable individual difference measures related to CWB are negative affectivity and cognitive ability. Negative affectivity, a trait at the core of neuroticism, has been studied in relation to CWB with moderate correlations. The predictive usefulness of cognitive ability for CWB has received increased attention in recent years. When multidimensional, multi-item scales of objective CWB constitute the criteria, cognitive ability appears to be a useful predictor (Dilchert, Ones, Davis, Rostow, 2007).

Integrity Tests

Integrity tests – sometimes referred to as honesty tests – assess individual differences traits related to trustworthiness of individuals. As many have discussed the theoretical rational behind these measures (cf. Ones & Viswesvaran, 2001), only a brief historical account is provided. Prior to the 1990s, several integrity tests were created and successfully implemented in organizations. However, their use skyrocketed with the passage of the Employee Polygraph Protection Act of 1988. Polygraph evaluations were subsequently outlawed in organizations for employee selection purposes, which led many professionals to seriously consider alternative sources to distinguish honest from dishonest job applicants. Currently integrity tests are administered to countless organizations across the globe and for a wide variety of jobs. Two types of integrity tests exist, overt tests and personality-based tests. Overt measures of integrity, as the name implies, explicitly ask test-takers about their attitudes of, and in a few cases include items about past incidences of, CWB. On the other hand, personality-based assessments are subtle and covert in nature. They rely on personality type items that successfully assess traits such as trustworthiness.

Construct Validity for Integrity Tests

With the abundance of integrity tests developed in the wake of the Polygraph Act, critics began to question whether the multitude of tests were indeed measuring similar constructs. Comprehensive meta-analyses quelled these arguments by showing strong relationships among the various personality-based tests and strong relationships among overt integrity tests (Ones et al., 1993). Most importantly, there exists a rather strong tie between between the two types of integrity tests. While a perfect overlap does not exist, there is compelling evidence supporting the idea that all integrity tests, whether overt or personality-based, measure the same underlying construct.

Psychologists first believed that integrity tests were essentially assessing the personality trait of conscientiousness. In search of empirical evidence, Ones (1993) turned her attention to meta-analysis. As theorized, she found that integrity tests largely tap into the domain of conscientiousness. However, the personality factors of agreeableness and emotional stability had meaningful relationships with integrity tests. Combined, conscientiousness, agreeableness, and emotional stability comprise factor alpha, a meta-trait commonly regarded as an indicator of a person's stability.

Criterion-Related Validity of Integrity Tests

Integrity tests were originally developed to assess important criteria for organizations. As a result, the bulk of the literature is dedicated to examining the relationships between integrity tests and criteria such as CWB and job performance. Regarding the relationship with CWB, integrity tests have had great success at pin pointing individuals with a greater proclivity to commit these deviant acts. Owing to its relations with factor alpha, integrity tests are among the very best noncognitive predictors of job performance. When used in conjunction with that of cognitive measures, integrity tests provide more incremental validity than any other type of measure (e.g. interviews, biodata, situational judgment tests, etc.).

Two particular methodological approaches have been utilized to assess the magnitude of the relationship between integrity tests and the the various criteria, using predictive and concurrent validity study designs. Across thousands of job applicants, analyses have shown strong support in the predictive power of integrity tests for criteria such as job performance and CWB. It is important to note that objective measures of CWB have notably lower validities than general self- and other-reported CWB. Objective measures of CWB, such as theft and property deviance, are typically more severe in nature and thus have low base-rates of occurrence making it difficult to detect.

More recent analyses have examined the relationship between integrity tests and a host of other criteria. Analyses repeatedly illustrate marked validities with criteria such as training performance, property damage, accidents on the job, objective measures of job performance, and still others. Objectively measured job performance studies have slightly weaker links to integrity tests but this attenuation is due, in part, to the behavior versus outcome dilemma. Behaviors (e.g. supervisor-rated job performance) reflect acts under the control of an individual whereas outcomes (e.g. objective records) introduce unwanted environmental constraints and biases that mask the true correlation. Figure 1 depicts the operational validities of integrity tests for a variety of criteria, based on meta-analytic results.
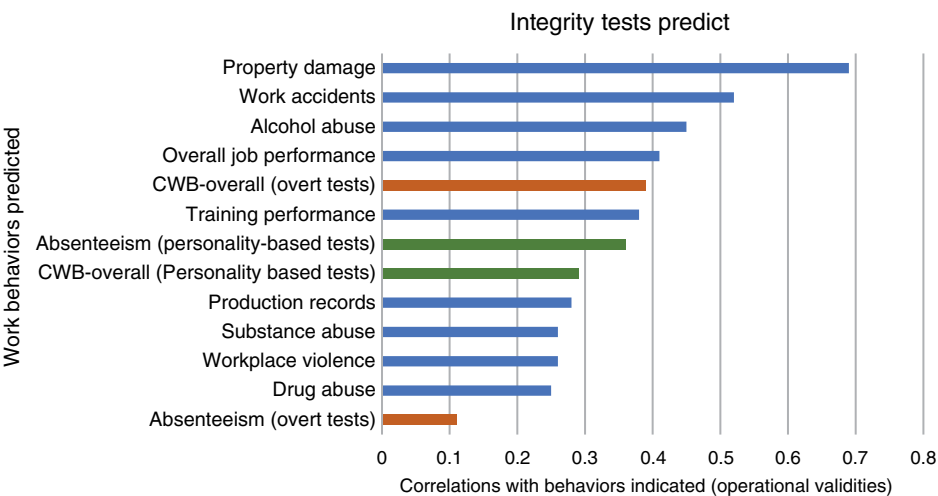
Figure 1   Integrity test-work behavior relationships from meta-analyses.

Unless otherwise indicated, the depicted validity coefficients reflect a combination of overt and personality-based assessments.

Even though integrity tests show substantial overlap with measures of personality, these inventories show greater predictive power for job performance, training performance, and general CWB than optimally weighted Big Five composite scores. In fact, integrity tests are the best predictor of CWB and among the best predictors for job performance in the field of Industrial and Organizational psychology. Many of the behaviors predicted by integrity tests are vitally important to all organizations across the globe. By implementing integrity tests, organizations are better able to abstain from hiring potentially deviant applicants all while increasing the chances of selecting the highest performing applicants. This conclusion generalizes across substantially different jobs, industries, and holds even in substantially different environments. Organizations would do well to continue the use of integrity tests, whether they use personality-based or overt inventories.

See Also

Antisocial Behavior, Assessment of
Big Five
Neuropsychiatric Disorders
Personality and Counterproductive Work Behavior

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Learning Styles / Fixed vs. Growth Mindset

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Mindsets

To what extent are basic human attributes and abilities changeable? People differ in what they believe regarding this enduring question about human nature and those beliefs influence their own goals, behaviors, and reactions to life events in ways that are consequential and surprisingly far-reaching. The concept of mindsets, developed by psychologist Carol Dweck, involves implicit beliefs about the degree to which people can change. There are two contrasting sets of beliefs. A fixed mindset, or entity theory, describes a view that human characteristics are essentially set and unchanging, whereas a growth mindset, or incremental theory, describes a view that these characteristics can change and develop over time based on a person's effort and experiences. Research on mindsets, which initially focused on intelligence but has since expanded to cover implicit beliefs about many other attributes, has demonstrated crucial differences between people who have a fixed versus growth mindset.

Mindsets Influence Goals and Learning Styles

In Dweck's theoretical framework (Dweck & Leggett, 1988), implicit beliefs about intelligence, goals, and learning styles are conceptually interrelated. In situations that require the application of their intellect, people's beliefs about the nature of intelligence will influence their goal and, in turn, lead them to behave in a manner to best attain that goal. Believing that one's level of intelligence is unchangeable will result in a performance goal, where the objective is to demonstrate one's own ability in order to appear capable. Conversely, believing that intelligence is malleable produces a learning goal, or a goal to increase one's own intelligence. These goals are important because people behave very differently depending on whether they are primarily motivated to appear smart or to

become smarter (Elliott & Dweck, 1988). People who have a performance goal are likely to respond unproductively to setbacks, which Dweck characterizes as a helpless learning style. After experiencing difficulty on a task, they typically will feel distress, decrease effort, work less effectively, and attribute poor performance to their own ability. On the other hand, people with learning goals are more likely to have a mastery-oriented learning style. They will get less upset and show less change in their effort and work quality when facing obstacles and will attribute poor performance to more controllable factors such as their effort (Diener & Dweck, 1978). These behavioral differences are consistent with their respective goals. Someone who has a performance goal will respond negatively and disengage quickly after a setback because being seen to struggle undercuts the goal to look smart but someone with a learning goal will persevere because trying different approaches to a problem provides an opportunity to learn something new. These goals influence behavior in other ways. For example, people with a performance goal view the exertion of effort negatively, often avoid challenges, and seek tasks at a level of difficulty where they are confident of success, while people with a learning goal view exertion positively and seek challenging tasks regardless of whether they expect to succeed (Elliott & Dweck, 1988).

The mastery-oriented learning style seen in people who have a growth mindset is beneficial to learning in many ways. It attracts people to challenging situations where they can develop new abilities and leads them to work with greater effort, persistence, and effectiveness. Because people with a growth mindset view effort to be positively related to success, they are also more likely to take steps to improve in areas where their own performance is currently lacking (Hong, Chiu, Dweck, Lin & Wan, 1999). There is clear evidence that viewing intelligence with a growth mindset is associated with better performance on objective measures of academic achievement. For example, Blackwell, Trzesniewski, & Dweck (2007) found that, in comparison to their peers with a fixed mindset, students who reported having a growth mindset at the start of seventh grade earned higher grades and had a stronger trajectory of improvement in math during seventh and eighth grade, and that their greater achievement was due to differences in their behavior and approach to the material. Specifically, students with a growth mindset were less likely to attribute failures to their own ability, more likely to respond to setbacks in a productively effortful manner, and more likely to view effort positively. Having a growth mindset also seems to attenuate the negative impact of factors that are typically associated with lower academic achievement, such as stereotype threat (Aronson, Fried, & Good, 2002) and poverty (Claro, Paunesku, & Dweck, 2016).

Relatively brief educational interventions that emphasize the malleability of human intelligence (e.g. Blackwell, Trzesniewski, & Dweck, 2007; Paunesku et al., 2015) can cause people to adopt a stronger growth mindset about intelligence. A recent area of emphasis has been the development and evaluation of such interventions as a way to improve educational outcomes, especially among students at risk for underachieving. Although this is a relatively new area of research, there is promising evidence supporting the idea that promoting growth mindsets can lead students to work more effectively and achieve better academic outcomes.

How Mindsets Are Formed

People begin to form beliefs about whether human characteristics are fixed or malleable in childhood. Receiving feedback about one's own performance is an important context for the development of these beliefs. Kindergarten-age children already differ in whether they view badness to be a fixed or malleable quality, and those who see it as fixed also tend to show many of the other helpless behaviors that are typically seen in people with a fixed mindset (Heyman, Dweck, & Cain, 1992). Children who were especially sensitive to criticism from an adult were more likely to view badness as fixed and also were more likely to respond negatively to setbacks, to attribute poor performance to their own abilities, and to not want to continue the task for which they were criticized. Feedback that is focused on personal qualities, such as skill or intelligence, is more likely to foster a fixed mindset and helpless behavior than feedback that is focused on the process (e.g. effort or the methods used) or outcome, and this is the case regardless of whether the feedback is positive or negative (Kamins & Dweck, 1999). Receiving person-focused feedback is detrimental because it leads people to connect their self-esteem too closely to the outcome of their latest endeavor. With this sense of contingent self-worth (see also Carl Rogers), people become overly concerned about the evaluation their own performance and the avoidance of failure and often forego potentially valuable opportunities that might not offer certain success. Despite the widely accepted belief that it is beneficial to praise people for their intelligence, doing so, in fact, has many negative consequences; it makes people adopt a fixed mindset and helpless learning style, eschew information about how to improve in favor of purely evaluative feedback, and even misrepresent their own performance in order to appear successful (Mueller & Dweck, 1998). Praising a person's effort or approach to a problem is preferable because it will foster a growth mindset and more productive mastery-oriented behaviors.

Extensions Beyond Intelligence

In addition to intelligence, people have implicit beliefs about many other human qualities that also affect their behavior and cognition in important ways. For example, people's social judgments are influenced by whether they have an entity theory of personality, believing that traits are fixed and unchanging, or an incremental theory, believing that it is possible for personality to change over time. People with an entity theory make stronger conclusions about a person's disposition from brief observations of behavior, assume that others' behavior will be more consistent over time, and have greater confidence in their own predictions about how others will behave (Chiu, Hong, & Dweck, 1997). People with an entity theory are also more likely to support extreme punishment for others who have behaved badly (Erdley & Dweck, 1993), to endorse stereotypes and use them when making social judgments, and to view outgroup members negatively (e.g. Levy, Stroessner, & Dweck, 1998).

Although much of the research in this area has focused on beliefs about whether attributes are fixed or malleable, implicit beliefs can differ on other dimensions as well. Some people believe that willpower is a limited resource that can be depleted by the exertion of

self-control (see Self-Control) and others believe that it is not limited and the strength of one's willpower does not fluctuate depending on prior effort (e.g. Job, Walton, Bernecker, & Dweck, 2015). People who view willpower to be limited are more likely to show ego-depletion, which is a decrease in the ability to exert self-control following prior effort, while people with an unlimited view did not show this kind of a decline. People with an unlimited view also seem to have better self-control in demanding situations and perform better on objective outcomes that require self-control, such as time management and grades.

See Also

Learned Helplessness
Persistence, Personality Correlates
Personality Stability Over Time

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Flow

Expression and Applications

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Csikszentmihalyi (1975, 1990) introduced the concept of flow to describe the subjective experience that is characterized by focused attention on the activity at hand, merging of awareness and action, loss of self-consciousness, distortion of time perception, increased sense of control, and autotelic experience (i.e. the experience of the activity being intrinsically rewarding; *auto* = self, *telos* = goal). He also suggested that people are more likely to experience flow if the activity provides perceived balance between challenges and skills, clear proximal goals, and immediate, unambiguous feedback.

On the one hand, research has consistently found people reporting flow across activities and contexts, suggesting that the capacity to experience flow is almost universal (Nakamura & Csikszentmihalyi, in press). On the other hand, research also illuminates individual differences in the frequency and the intensity of flow experience. For example, Fullagar and colleagues' Experience Sampling Method (ESM) studies in 2009 and 2015 revealed significant variation in flow intensity across individuals.

Conceptualization and Operationalization

Flow researchers have conceptualized individual differences in flow differently. For example, flow proneness or flow propensity refers to individual differences in the frequency of flow experience in daily life. According to Ullén and colleagues (2012), people who are high in flow proneness experience flow across work, leisure, and maintenance (i.e. household work and other routine chores) domains. People's proneness to experience flow (i.e. the frequency of flow experience) in a specific domain is sometimes referred to as dispositional flow (e.g. Jackson & Eklund, 2002). Often-studied domains include sports, music, and education.

Csikszentmihalyi (1975) first introduced the concept of an autotelic personality to describe people who enjoy what they are doing across contexts, regardless of extrinsic rewards. The posited characteristics of autotelic people include responsiveness to intrinsic

rewards, attentional control, actively pursuing flow experiences, approaching activities with a sense of discovery, and low ego involvement. Autotelic personality is associated with the possession of metaskills including curiosity and interest in life, persistence, and low self-centeredness (Nakamura & Csikszentmihalyi, in press).

Self-report questionnaires are commonly employed to measure flow proneness, dispositional flow, and autotelic personality. The Swedish Flow Proneness Questionnaire (SFPQ; Ullén et al., 2012) measures flow proneness by assessing respondents' frequencies of experiencing flow in daily work, leisure, and maintenance activities. The Dispositional Flow Scale-2 (DFS-2; Jackson & Eklund, 2002) was developed to measure dispositional flow in a domain specified by researchers. Later, the DFS-2 was modified to measure autotelic personality, indicated by a person's frequency of flow experience in "any activity in life" (Johnson, Keiser, Skarin, & Ross, 2014; Ross & Keiser, 2014).

Other self-report scales used to operationalize dispositional flow and flow proneness include the Flow Questionnaire (FQ). It differentiates individuals who report flow-like experience from those who have never experienced flow and assesses people's frequency of pursuing their preferred flow activities (Csikszentmihalyi & Csikszentmihalyi, 1975; Delle Fave, Massimini, & Bassi, 2011). Also commonly employed in flow research are the Flow Short Scale (FKS) developed by Rheinberg, Vollmeyer, and Engeser in 2003, Jackson, Martin, and Eklund's Short Flow Scale and Core Flow Scale, and Bakker's Work-related Flow Inventory, all developed in 2008. These scales are considerably shorter than the SFPQ and DFS-2.

Another conventional measure of autotelic personality or flow proneness employs the ESM. Participants in an ESM study receive signals at random times in the day and immediately complete a brief self-report form about their feelings or other momentary experiences. Autotelic personality has been measured by the proportion of a participant's responses in which they report high perceived challenge and skill levels simultaneously (i.e. flow-conducive conditions) or high intrinsic motivation under these conditions.

Psychological and Personality (Trait) Covariates

Subsequent research has shown that individual differences in flow are associated with various personality traits, although the underlying mechanisms relating flow experience to personality are still relatively unclear. A coarse classification divides the current literature on traits and flow into two sets: one set of studies has examined the relation of the Big Five personality traits to individual differences in flow; a second body of research has explored traits theoretically linked to flow, such as mindfulness and achievement motives.

Among the Big Five traits, one would predict that autotelic personality is related to conscientiousness because self-discipline, achievement-striving, and competence may foster goal-setting and effective goal pursuit. Indeed, conscientiousness has been consistently shown to be associated with flow proneness by Ullén and colleagues, Johnson and colleagues, and Ross and Keiser. Relatedly, researchers such as Teng in 2011, Cermakova and colleagues in 2011, and Kuhnle, Hofer, and Kilian in 2012 found that temperament factors of persistence, attentional control, and self-control were positively associated with flow experience. Moreover, a 2008 experiment by Keller and Bless showed that people high

(vs. low) in action-state orientation – the ability to stay focused whenever necessary to complete the activity at hand – were more sensitive to the perceived balance between challenges and skills. These results indicate that self-regulatory capacities are essential to flow proneness.

Conversely, neuroticism is expected to be inversely associated with autotelic personality because negative emotions, impulsiveness, and self-consciousness may disrupt sustained concentration. The negative relationship was consistent across studies conducted by Ullén and colleagues, Johnson and colleagues, as well as Ross and Keiser. Asakawa's 2010 study also revealed that autotelic people had lower trait anxiety. These results indicate that neuroticism is detrimental for entering and sustaining flow in daily activities.

It is less clear theoretically how autotelic personality relates to extraversion, agreeableness, and openness to experience. Empirically, there is mixed support for a positive relationship of autotelic personality to extraversion; there is also no consistent empirical evidence for a significant relationship to agreeableness or openness to experience. More research is necessary to clarify these relationships.

In addition to the relationship between flow proneness and the Big Five personality traits, individual differences in flow are shown to be associated with psychological resources such as self-efficacy, mindfulness, and internal locus of control. First, research has consistently found a positive association between flow experience and self-efficacy or self-esteem among indoor and outdoor rock climbers, college students, as well as PhD students and faculty members in studies conducted by Schüler and Nakamura in 2013, Asakawa in 2010, and Hosseini and Fattahi in 2014, respectively.

Second, (trait) mindfulness is related to flow proneness conceptually and empirically. Moore in 2013 reported a positive relationship between flow proneness and trait mindfulness. However, Sheldon, Prentice, and Halusic conducted a series of studies in 2015 and suggested that mindfulness was associated with only the sense of control dimension of flow positively while associated with the absorption dimension of flow negatively. Future researchers should be mindful that different facets of flow experience may be associated with mindfulness differently.

Third, people with strong internal locus of control (LOC) believe that their effort can influence the outcomes of their actions. In 2008, Keller and Blomann found that compared to people with low internal LOC, people with high internal LOC reported more involvement and enjoyment when playing games that had balanced levels of challenge and skill. The result supports the "person-activity fit" hypothesis that people's dispositional belief in their own control favors flow activity that provides them a strong sense of control in the moment.

Finally, research has addressed the relations of motives to flow. In 2005, Eisenberger and colleagues found that workers who were high in need for achievement reported optimal experience when challenge and skill levels were simultaneously high. Subsequent research on achievement flow motive – defined as the motivation to both seek and master difficulty – by Baumann and Scheffer in 2010 and Busch and colleagues in 2013 revealed that (implicit) achievement flow motive was positively associated with flow experience among German business students, with intrinsic motivation among US college students, and with educational attainment among German, Cameroonian, and Costa Rican adults. In addition, Schüler in 2010 found that sports players whose implicit and explicit

achievement motives were congruent were more likely to report flow than those whose motives were incongruent. Also, research conducted by Moneta (2004) on work and Abuhamdeh and Csikszentmihalyi on leisure suggested that flow is associated with trait intrinsic motivation positively; moreover, trait intrinsic motivation amplifies the positive effect of challenge on enjoyment in intrinsically motivated activities.

Demographic, Biological, and Cultural Differences

Demographically, males and females differ in the activities where they are more likely to experience flow. For instance, in ESM studies by Shernoff and colleagues in 2000 and 2007, US adolescent girls reported more flow experience than boys in the classroom and in life overall. Males, on the other hand, have consistently reported more flow experience than females when on the internet or playing video games. In addition to gender, Collins and colleagues in 2009 found that age was negatively associated with average quality of flow among older adults. However, the evidence of age differences in flow is not adequate for a definitive conclusion currently.

Biologically, flow proneness may be heritable to a certain extent. In a 2012 twin study, Mosing and colleagues concluded that flow proneness was moderately heritable, with similar genetic factors influencing flow proneness in work, leisure, and maintenance activities. In addition, the initial results of neurobiological research on flow suggest that individuals who are prone to flow may be biologically or neurologically different from those who are not. For instance, in 2013, de Manzano and colleagues reported that availability of dopamine D2-receptors in the striatum (particularly the dorsal striatum) was associated with flow proneness positively. Interestingly, consistent with the findings on flow and personality traits, striatal D2-receptor availability is associated with lower impulsivity, lower neuroticism, higher emotional stability, and higher conscientiousness.

Furthermore, Wolf and colleagues in 2015 showed that compared to amateur table tennis players, professional players had lower left-brain activity and stronger right-temporal premotor activity coherence, which was positively associated with flow experience among professional players. Verbal-analytical processes are associated with left temporal brain activity, suggesting professional athletes were able to inhibit the interference of irrelevant verbal-analytical processes and attend fully to controlling their motor actions when playing. Such ability may potentially contribute to their flow experience in sports.

Culturally, as Massimini, Delle Fave, and colleagues have theorized and extensively documented, people with different backgrounds also show differences in flow. First, culture influences parenting style, and thereby the prevalence of flow experience among children. For instance, studies in 1998 and 2001 by Asakawa and colleagues showed that Asian-American parents were more likely than Caucasian-American parents to (1) make major academic decisions for their children and (2) support their children's autonomy on what courses to take. Asian-American adolescents appeared to benefit from this parenting style: They reported more flow experience in learning activities than their Caucasian counterparts, according to Shernoff and Schmidt's 2008 research. These results suggest that culture affects students' learning experience potentially through the mediation of parenting style.

Culture also affects how people perceive and approach challenges and hence the optimal challenge-skill ratios are different across cultures. Asakawa and Moneta, respectively, showed that while autotelic Japanese college students reportedly spent more time on challenging tasks, the optimal challenge-skill ratios for US twelfth graders and Hong Kong college students were inclined toward skills. These findings cannot be explained by the East–West cultural dichotomy. Therefore, more cross-cultural research on flow is needed to understand the underlying mechanism of cultural influence on flow.

Flow and Physical and Psychological Health

Some research on individual differences in flow and physical and mental health has begun to illuminate the relationship between them. First, early qualitative investigations by Massimini suggested that people can experience flow despite physical disability. Later research by Delle Fave and colleagues has supported this claim. For example, in a 2014 ESM study conducted by Sartori and colleagues, rehabilitation activities were characterized by engagement, concentration, sense of control, and perceived balance between challenges and skills among hospitalized clients with orthopedic problems, neurological disorders, or chronic obstructive pulmonary disease. These results suggest that people's capacity for experiencing flow exists regardless of their physical conditions.

As for psychological health, in a 1992 psychiatric case study reported by Delle Fave and colleagues, identifying and encouraging participation in a flow activity contributed to successful treatment of an agoraphobic patient, suggesting the potential therapeutic contribution of flow. In addition, correlational research has associated individual differences in flow experience with positive psychological well-being dimensions such as life satisfaction, personal growth, and *jujitsu-kan* (fulfillment, in the Japanese context). These promising results call for further experimental research to disentangle the causal relationship between various psychological health conditions and flow experience.

Conclusion

Individual differences in flow constitute a fertile area for both theoretical and empirical work. Active areas of current research include the nature of autotelic personality and the mechanisms by which it relates to experiencing flow. Future areas of research might include the relation of flow to physical and psychological health conditions.

See Also

Flow
Milhàly Csikszentmihalyi
Personality and Positive Psychology
Personality and Well-Being

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Personality in Military Settings

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History and Personality Predictors

The military experience can be thought of as a particularly intense context for personality-environment transactions. Involvement in combat represents one of the more extreme experiences an individual may encounter, and many books, movies, and documentaries have examined the impact of wartime experiences on the military service members, military leaders, and their families. Conversely, the characteristics of military service members and military leaders are regularly understood as playing a determining factor in success or failure on the battlefield. For instance, most historians agree that Union Army's progress against the Confederacy in the American Civil War was slowed considerably by the leadership of the narcissistic and overly cautious General George McClellan, and then accelerated by the leadership of the more dutiful, cognitively complex, and assertive General Ulysses S. Grant. More generally, Dixon (1976) argued that characteristics in military leaders such as mental rigidity and dogmatism, ego fragility, and the fear of failure played pivotal roles in some of the most epic military failures of the twentieth century.

The body of theory and research exploring linkages between psychological characteristics to military experiences and outcomes is long. Indeed, the idea that military personnel should be selected on the basis of their personality characteristics for thousands of years. Plato described effective "Guardians" as possessing attributes such as "quick senses to detect an enemy," being "fearless and indomitable in the face of any danger" while also being "gentle to their own people and dangerous only to enemies." Indeed, he proposed using tests in childhood to identify those whose character was well-suited for military service. Some of the earliest tests of individual differences in modern psychology were developed primarily to help improve selection procedures the military (e.g. Ellis & Conrad, 1948). More recent research efforts such as Project A (McHenry, Hough, Toquam, Hanson, &

Ashworth, 1990) have broadened the range of predictors and outcomes examined, and linked these more directly to frameworks found outside of the military.

Here, we will review how personality traits appear to relate to military outcomes such as performance, attrition, training success, and leader emergence, and how military experiences seem to affect personality traits over time.

Personality Predictors of Military Performance

Predictors of military performance appear to parallel predictors of performance in other contexts. For example, both mental ability and aspects of conscientiousness are strong predictors of military performance (McHenry et al., 1990). There is even evidence that personality traits may be stronger predictors of performance in military settings than nonmilitary settings. In particular, higher levels of organizational citizenship behaviors (OCBs) and lower levels of counterproductive work behaviors (CWBs) have been associated with higher levels of conscientiousness as well as cooperativeness, attention-seeking, and preference for physical activity (Drasgow et al., 2012).

Training

There are indications that certain psychological characteristics function similarly to alter the rate at which recruits learn skills in training. Traits such as ambition, achievement motivation, and engagement and enjoyment of educational and intellectual activities have been associated with more effective training outcomes (Driskell, Hogan, Salas, & Hoskin, 1994). Successful completion of the Army's rigorous Ranger training program has been linked with a range of traits related to well-being and resilience, such as optimism and adaptability, and lower tendencies toward depression and overgeneralizing negative events (Lester, Harms, Herian, & Sowden, 2015).

Attrition

The costs of military service members leaving the military before their term of service is complete (e.g. by quitting or being discharged) can be crippling given the costs associated with recruiting and training. Consequently, there has been increasing work to identify predictors of attrition. In particular, a number of studies have identified aspects of neuroticism or preexisting mental disorders as being predictive of early discharge (Fiedler, Oltmanns, & Turkheimer, 2004).

Leader Emergence and Effectiveness

Given the large role that leaders can have on subordinates and on the attainment of organizational goals, better identifying the qualities that are predictive of effective leadership could improve in a range of performance-related outcomes for the military as a whole. As with the military outcomes thus far discussed, there are indications that the relationships linking personality to leadership outcomes are similar to those found in nonmilitary

settings. For instance, studies of military cadets have frequently found positive leadership outcomes to be associated with the Big Five dimensions of extraversion and conscientiousness, and less regularly with openness, agreeableness, and emotional stability (Chan & Drasgow, 2001).

Beyond the Big Five, ratings of military leadership have been positively associated with dimensions such as ambition, egotism (e.g. a sense one is superior to others), self-esteem, prudence, and educational interest, but negatively with impression management and manipulativeness (Johnson, 1999). Early-career promotions in the US Army were associated with higher levels of psychological resources such as optimism, engagement, positive affect, and lower negative affect and loneliness (Lester, Harms, Bulling, Herian, Beal, & Spain, 2011). And longitudinal studies of cadets at military academies have shown that developing leadership skills is positively related to characteristics such as narcissism, excessive attention to detail, and stringent adherence to rules, while paranoia, unconventional thinking, and indifference negatively impact leadership development (Harms, Spain, & Hannah, 2011).

Mental Health Outcomes

Working within the military is almost uniquely associated with the experience of sanctioned killing, and of greatly increased mortality risk. Both of these can have large and enduring psychological effects that are still not fully understood. A large number of studies have found links between military experiences and mental health problems, particularly if the individual's military experience involved combat. Combat-related experiences appear to substantially increase rates of antisocial behaviors and may more than double rates of posttraumatic stress disorder (PTSD) symptomology. For example, a study of Vietnam veterans found higher levels of combat exposure to substantially increase measures of a range of negative psychological outcomes taken nearly 20 years later, such as meeting criteria for PTSD and antisocial personality disorder (Barrett et al., 1996).

Although there are clear main effects of combat experiences on the development of negative psychological and behavioral characteristics, it is also clear that some individuals are more susceptible to these effects than others. For instance, scores on several MMPI dimensions taken prior to military experience predicted greater PTSD symptoms among veterans later in life (Schnurr, Friedman, & Rosenberg, 1993). More recently, a large study of US Army soldiers found individuals scoring lower on measures of positive psychological health, such as optimism, positive affect, and adaptability tended to have increased risk of drug abuse and suicide while serving in the military (Brady, Credé, Harms, Lester, & Bachrach, 2019; Krasikova, Lester, & Harms, 2015).

Effect of Involvement in Military Settings on Personality Development

Military culture departs substantially from civilian cultures, with a particularly strong hierarchical culture valuing adherence to a chain of command. Recent studies have begun investigating how such a culture impacts personality development. For example, longitudinal research has shown that military service attenuates the normative tendency to increase in agreeableness in early adulthood (Jackson, Thoemmes, Jonkmann, Lüdtke, & Trautwein, 2012). Another

study showed that levels of neuroticism tended to decrease following basic military training while levels of conscientiousness tended to increase (Vickers, Hervig, Paxton, Kanfer, & Ackerman, 1996).

Interventions to Develop Psychological Resources/Skills

There have been increasing efforts to identify the psychological resources that can help military personnel cope with the stresses associated with military life. For example, the Comprehensive Soldier and Family Fitness (CSF2) program initiated by the US Army consisted of specialized resilience training using noncommissioned officers to train other soldiers within their unit. The program showed some effectiveness in buffering soldiers against stress-related disorders, with soldiers showing lower levels of mental health problems and substance abuse (Harms, Herian, Krasikova, Vanhove, & Lester, 2013). Similar results were found in a recent meta-analysis of resilience training programs in the military context (Vanhove, Herian, Perez, Harms, & Lester, 2015).

Current and Emerging Issues

Recent military conflicts have seen a number of new roles and challenges faced by military personnel. For example, recent military conflicts have seen a dramatic increase in the role of improvised explosive devices (IEDs) and drones in combat, and the military has been tasked to play greater roles in nation-building, which have been accompanied by changes in military tactics. There are already indications that these new military settings may shape psychological characteristics in perhaps unexpected ways. For instance, drones operators show heightened risk of PTSD symptomology, despite the fact that those operating drones are not subject to the same physical risks as military service members serving in "boots on the ground" positions within combat zones (Chappelle, Goodman, Reardon, & Thompson, 2014). As the military setting continues to evolve, it will be necessary to evaluate the extent to which our understanding of the psychological predictors and outcomes of experiences obtained from previous research will generalize to these emerging contexts.

See Also

Antisocial Personality Disorder
Leadership Styles
Personality and Counterproductive Work Behavior
Posttraumatic Stress Disorders

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Personality and Educational Outcomes

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The relationships between individual differences and academic performance have long been of interest to psychologists. Early efforts focused largely on the role of cognitive ability factors in academic performance, with a now long line of research suggesting that intellectual ability is a strong predictor of academic achievement and performance. However, scholars have also long recognized that non-ability factors, such as personality characteristics, are also related to academic achievement and performance. For example, 75 years ago, Daniel Harris (1940) argued that personality traits could be used to predict academic performance, though the research base at the time was inconsistent and plagued by methodological flaws and variability in how personality was conceptualized. As broad categorizations of the personality trait domain have come into focus (i.e. the Five Factor Model) and meta-analytic techniques have become more accessible and refined, there is an increasing base of evidence that student personality traits are associated with levels of academic performance.

Academic Performance Outcomes

Academic success has been defined in a number of ways, though the three most common metrics are grade point average (GPA), performance on an exam, or reputational evaluations such as teacher, peer, or self-report ratings of grades. The most commonly used of these has been GPA, as it has important implications outside of research (e.g. a selection tool for higher education or post-graduation employment). The metric, however, has limitations; it is often susceptible to inflation and can be calculated differently across educational institutions. Exam performance, which can include standardized tests or tests given as a course requirement, is most often used as an indicator of academic success when the research takes a shorter-term perspective on success. Finally, academic success measures can also include reputational metrics that assess perceptions of the academic success of the

student as judged, or rated by teachers, peers within the learning environment, or the student him or herself. A meta-analysis by Nathan Kuncel (2005) and his colleagues showed that student self-reports of GPA are highly correlated with GPAs of those students obtained from institutional records.

Student Populations in the Research Base

Much of the research on personality and academic performance has been conducted on students in post-secondary educational contexts, most likely due to the relatively easy access to this population. A reliance on post-secondary samples is a limitation in that the results are not likely to generalize to other educational levels. As social and learning contexts change across educational levels (e.g. from primary to secondary educational contexts), the role of personality in academic performance is also likely to change. For instance, there is likely to be less variation in intelligence scores among college students than there is among students in lower educational contexts, suggesting that non-ability factors may be more important in predicting academic performance within post secondary education contexts.

Additionally, research in applied psychology has shown that relationships between personality characteristics and workplace performance are higher in jobs where the workers have greater levels of autonomy. Applying these findings to educational contexts suggest that as students progress to secondary and post secondary educational contexts, where there are increasingly higher levels of student autonomy, the relationships between personality characteristics and performance may grow stronger. Most of the relationships we discuss in the rest of this entry are based on undergraduate students. We will draw attention to those occasions where findings are based on samples from other educational levels.

Broad Traits and Educational Outcomes

Although other perspectives exist, the Big Five taxonomy is currently the dominant perspective on the organization of personality traits (see entry on the Big Five). Of the Big Five traits, the strongest relationships with academic performance have been observed for the trait of conscientiousness. At the post secondary level, a meta-analysis by Michelle Richardson (2012) and her colleagues found that the corrected correlation between conscientiousness and GPA was .23 across 69 studies. Similar findings were reported by Arthur Poropat (2009) in a meta-analysis of 35 samples of secondary students. Specifically, he reported a (corrected) correlation of .21 between conscientiousness and academic performance. Both of these meta-analyses also looked at the relationship between intelligence and academic performance. Interestingly, the corrected values for the intelligence-academic performance relationship (.21 in the analysis by Richardson and colleagues and .24 in the analysis by Poropat) are very similar to the relationships between conscientiousness and academic performance, indicating that conscientiousness is as predictive of academic performance as intelligence at the secondary and post secondary levels.

The broad trait of openness has also been shown to be related to academic performance, though the magnitude of the relationships for this trait are notably lower than those for conscientiousness. For example, the corrected correlation between openness and GPA was .09 in the Richardson meta-analysis and .12 in the Poropat (2009) meta-analysis. Relationships nearer to zero have been found for the remaining Big Five traits of agreeableness, extraversion, and neuroticism.

Narrow Traits

According to Lewis R. Goldberg (1981), who first referred to the five broad trait dimensions as the "Big Five," the use of the term "Big" was meant to communicate the idea that these five trait domains are broad in their nature. As such, narrowly defined traits can be identified within each of the broad trait dimensions. The breadth of the Big Five traits can hamper their predictive capabilities, particularly when some aspects of the broad trait domain are less tightly linked to the criterion of interest than are other aspects. Thus, it is common for the more narrowly defined traits to have as strong or stronger predictive relationships with criteria than the broader trait domains.

Achievement Motivation

The broad trait of conscientiousness is often thought to consist of two more narrowly defined traits, achievement and dependability. The achievement aspect of conscientiousness captures a person's tendency to set and strive for goals, a desire to accomplish difficult things, and a focus on task mastery. Numerous studies and a meta-analysis by Spangler (1992) provide evidence that students with higher levels of achievement motivation tend to have higher levels of academic performance. The observed relationships have tended to be rather modest, however, with values often falling between .13 and .18.

Goal Orientation

In their work with primary school children, Carol Dweck and her colleagues (1988) observed that children tended to react to failure differently. Some children tended to experience negative affect, a subsequent aversion to the task, and decreased levels of performance when continuing to work on the task. Dweck and her colleagues suggested that these children adopted a "performance goal," such that performance on the task was a demonstration, to themselves and others, of their competence. Children with a performance goal determined success by comparing their performance to that of others; they perceived themselves as successful when they did better than others. In contrast, other children reacted to failure by increasing their effort, seeing failure as an obstacle to be overcome. These children tended to show increased levels of performance over time. Dweck and her colleagues suggested that these children had adopted a "learning goal," such that performance on the task was an indication of how well they had mastered the task to this point in time. Children with a learning goals determined success by comparing their performance with how they had done in the past and assessing the extent of improvement.

Early on in this line of research, the learning and performance goals were conceptualized as goals that the students would adopt at a particular point in time when working on a particular task. As the research progressed, however, scholars began to conceptualize these state goals as stable traits, referring to them as learning goal orientation and performance goal orientation. Learning goal orientation (sometimes referred to as mastery goal orientation) is the tendency to approach achievement situations with a focus on improvement and learning, and, as such, is similar in nature to achievement motivation. Performance goal orientation is the tendency to set goals about doing better than others. Subsequent research suggested that performance goal orientation could be better conceptualized as two distinct traits. Performance-prove orientation is the tendency to focus on being better than others while performance-avoid orientation is a tendency to exert effort directed toward avoiding failure or being perceived as incompetent.

Like achievement motivation, the relationships between the three goal orientation traits and academic performance are not very strong. In a meta-analysis, Chiungjung Huang (2012) found relationships between the goal orientations and academic achievement of .13, .07 and –.12 for the learning, performance-prove and performance-avoid goal orientation traits, respectively. Note that the correlation for learning goal orientation is very much in line with what has been reported for achievement motivation.

Test Anxiety

Coming out of a tradition of David C. McClelland's notion of the fear of failure, test anxiety represents a tendency to experience worry, anxiety, and physiological reactions to testing or other evaluative situations. Test anxiety is related to the Big Five trait of neuroticism. While neuroticism has not shown relationships with academic performance, test anxiety has. In the meta-analysis by Richardson and colleagues, test anxiety was found to correlate –.21 with GPA across 29 studies.

Personality as a Distal Predictor

The accumulated evidence generally suggests that the relationships between personality characteristics and academic performance outcomes tend to be rather modest in magnitude. Such findings should not be surprising and should not be considered disappointing. First, academic performance outcomes, such as GPA, are clearly complex indices of success that are influenced by a large number of factors, including intelligence, personality, personal values, socio economic factors, and family situations, among many others. Second, much of the research has taken a piece meal approach, whereby bivariate relationships between a single trait and a single outcome are the norm. However, individual traits may each predict unique variation in the outcomes such that considering multiple traits at the same time may result in higher levels of explained variance. Going a step further, some of the traits may interact with one another as well, explaining even more variance. Third, personality traits are likely best conceptualized as distal determinants of academic performance. As such, the influence of these traits is most likely to be indirect through more proximal processes. Considerable research indicates that the influence of personality is most likely to occur through motivational processes, such as self-efficacy, goal setting, state goal orientation, and the like.

See Also

Big Five
Educational Ability Testing (GRE/MAT/MCAT/LSAT)
FFM and Facets
Goals and Motives
Motivation (Achievement, Affiliation, Power)
Test Anxiety

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Personality and Law Enforcement

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The First Wave of Personality in Law Enforcement: Looking for a Police Personality

The first wave of research on personality in law enforcement compared police and "general population" personality norms and examined if there was a personality "type" that was attracted to policing as a career vocation. This was the "predisposition hypothesis." Studies typically compared police officers or applicants with general others or norms in terms of psychological or personality characteristics. Comparisons were also made with other criminal justice personnel, nuclear submariners, air force pilots and even with habitual criminals. Themes explored focused on clinical and pathological issues such as conservatism and authoritarianism, racial prejudices, mental unfitness, cynicism, corrupt attitudes, lowered intelligence levels as well as masculinity. There were limitations to these studies, and they were mainly the lack of matched controls and that the studies based their conclusions on the results of instruments designed for clinical use rather than for normal populations.

The more commonly employed instruments during this wave were the Minnesota Multiphasic Personality Inventory (MMPI), the Eysenck Personality Questionnaire, 16 Personality Factors (16PF), Myers-Briggs Type Indicator (MBTI), and California Psychological Inventory (CPI). One study found that police applicants applying to the London Metropolitan Police were higher on extraversion when compared to general norms while the average police candidate was high in control, toughmindedness, and independence and low on anxiety, based on a large aggregated sample of 15,000 candidates for positions in various law enforcement agencies in the United States. Using the MBTI with a US police organization, a study found that police applicants were extraverted, rational, nonintuitive, decisive, rigid, personal, and organized. The same profile was seen for Australian police recruits. Significantly, ISTJ (introversion, sensing, thinking, and judging) was noted to be common among senior police officers, implying that senior officers compared to junior officers may be more introverted, introspective, thorough, decisive, logical, attentive to detail, and well adapted to routine. Other studies found that the CPI scales of

responsibility and self-control were substantially higher for the law enforcement samples than the normative sample, while scales of flexibility, sensitivity, and creative temperament are substantially lower for the law enforcement sample.

The Second Wave: Looking for Successful Police Personalities

The second wave of research looked at "successful" and "unsuccessful" police officers, asking if they had different personalities. Studies have found a significant correlation between MMPI scales and outcomes such as serious misconduct, frequency of car accidents, aggressiveness, and performance. MMPI-2-RF scores were also correlated with stress problems, performance problems, discipline issues, and communication skills. On the other hand, some studies reported that those who graduated from police academy training were more outgoing, stable, venturesome, confident, controlled, and relaxed.

Significant correlations have been found between several CPI scales, supervisory ratings, during training and on-the-job, supervisory ratings of leadership and overall suitability for police work (i.e. socialization, communality, and flexibility). Interestingly, Sarchione, Cutler, and Nelson-Gray (1995) attempted to use the CPI to predict groups of officers who received disciplinary action in the course of their work. These officers scored significantly lower than other groups on scales measuring responsibility, self-control, socialization, tolerance, sense of well-being, and flexibility. Using the personality assessment inventory (PAI), Weiss and colleagues (2005) reported that the Antisocial (Egocentricity) scale predicted insubordination and citizens' complaints while the Antisocial (Stimulus Seeking) scale and Negative impression scale predicted neglect of duty.

The Inwald Personality Inventory (IPI) has been another popular instrument developed specifically to assist public safety and law enforcement agencies in selecting new officers. By itself, the predictive validity of the IPI does not appear to be strong, but coupled with the MMPI, it has been shown to predict performance well. For example, the IPI when used with the MMPI effectively classified officers who were accused of absences, lateness, and disciplinary interviews. In another study, researchers used the IPI and MMPI to predict global job performance of government security employees after nine months with a true classification rate of 77.2%.

It should be noted that many of these studies have adopted a "select-out" rather than a "select-in" approach. This may be due to the absence of strong predictors of success in police work: that is, it was easier to say which are the qualities a police officer should not have than to say which factors he or she must have. At best, the results of these studies are mixed and at worst, several contradicted each other. Despite differing results, there might be some indication that police officers who are higher on neuroticism as a personality trait (for example, hypomania, hysteria, paranoia) appear to be poor performers. Another positive improvement in the selection research is the move to select police officers using a combination of measures that are both clinically relevant and measures of normal personality. Arrigo and Claussen (2003), for example, argued that administrators could use the IPI with the NEO-Personality Inventory–Revised screen for both antisocial personality disorder and conscientiousness in police selection contexts.

The Third Wave: "Predisposition" Versus "Socialization" Studies

The third wave of research has looked at police personality asking whether it is a "predisposition" ("born") or "socialization" (canteen culture / cop culture) issue. Studies conducted have attempted to answer the question, "Which was more potent – the predisposition or the socialization factor, and how do they interact with each other?" This question is probably best studied with a longitudinal design that allows for the systematic investigation of both personality and socialization factors as they interact. Roberts, Caspi, and Moffitt (2003), for example, wrote a paper on how personality affects work and how work, in turn, affects personality for young adults aged 18 to 26. Using a sample of 1,037, they noted that adolescent personality traits, assessed at age 18, predicted the nature of young adults' work experiences over the next eight years. In turn, these same work experiences predicted corresponding changes in personality traits over the same developmental period. If the police department recruits personnel at the age of 18 or more, then it suggests that the same nature of influence between personality and work experiences is also possible for police samples. Only a handful of published longitudinal studies that investigate police officers exist, as most have been cross-sectional studies. Unfortunately, those studies did not focus on personality.

The Fourth Wave: The Big Five Framework

Personality psychology has made a remarkable comeback with the advent of the Big Five Framework. Hogan, Johnson and Briggs (1997) argued that there might be several important changes in the research that may have resulted in this. First, the traditional method of choice in selection work for industrial-organizational psychologists has always been cognitive tests, which may result in adverse impact for protected classes of employees. Well-constructed personality tests, on the other hand, are gender and race blind. The second reason for this resurgence was the appearance of the Five Factor Model (FFM) or the Big Five framework, which provided a way to organize personality measurement.

Some studies have attempted to directly measure the Big Five factors. For example, some research studies measured the Big Five using the IPI and MMPI and showed that conscientiousness was correlated with six performance criteria (probation ratings, peer evaluation, counseling cards, training ratings, and grade point average for training, and turnover). In another study looking at police applicants, 10 police experts using the NEO-Job Profiler to describe characteristics of entry-level police showed that the ideal police officer was thought to be characterized by low scores on angry hostility, impulsiveness, vulnerability, and tender-mindedness and high scores on assertiveness, competence, and self-discipline. Interestingly, while expert judges believed that high Agreeableness was not desirable, it was discovered that those who received high recommendation ratings at the interviews in fact have high agreeableness scores.

Khader (1999) used the NEO-FFI on a Singaporean sample of police officer applicants and found that when compared to a demographically similar group such as narcotics officers, police applicants were higher on neuroticism, more conscientious, and used a combination of social support and emotion-focused coping techniques. In a related study, the profiles of applicants who were accepted and rejected by police interview boards were

examined for differences in personality scores. Results showed that "accepted" applicants had lower neuroticism, higher openness, and used less emotion-focused coping. It was also found that trainees who were rated as less successful by their peers and supervisors tended to have high neuroticism and used more emotion-focused coping scales. At the same time, trainees who had higher training scores in the academy had moderate levels of neuroticism, higher extraversion and conscientiousness (N-E-C combination), used problem-focused coping styles, and had higher cognitive ability scores.

New Zealand police psychologists found promising results using the NEO-PIR and argued that the NEO offers promise "because the higher and middle order traits added incremental validity to cognitive testing" as a predictor of performance. Positive correlation coefficients between personality and performance were reported for the various personality domains and overall recruit performance after training. The NEO-PI-R facet scales also correlated with performance. Police recruits who were better performers were reliable, dependable, determined, self-confident, goal-oriented, preferred to be busy, were willing to consider new ideas, were forceful and assertive, possessed a belief that society is generally honest, possessed a tolerance for personal frustration, and were resistant to stress.

Using a large Singaporean sample of serving police officers and the NEO-FFI, Chan (2002) found that neuroticism was correlated with supervisory ratings of officers' annual performance ratings and potential for future success. He noted that conscientiousness was correlated positively with supervisory performance ratings and potential for success ratings. Several personality traits were also correlated with subjective well-being outcomes. Specifically, neuroticism, extraversion, agreeableness, and conscientiousness had significantly correlated with self-reported job satisfaction. Neuroticism was significantly correlated with organizational records of discipline cases. Neuroticism, extraversion, agreeableness, and conscientiousness were reported to correlate significantly with self-reported intention to quit.

More recently, Detrick and Chibnall (2013) found that the NEO-PI-R profile of the successful police officer applicant is characterized by very low levels of neuroticism and high levels of extraversion and conscientiousness (with average levels of openness and agreeableness).

The Big Five model is not without critics. Researchers had argued that the term *model* should not be used at all and preferred the term *approach*, and that there is a lack of theoretical explanation with respect to the five dimensions. For instance, Briggs (1989) noted that no one has a priori theoretical reason why it was these particular five dimensions rather than some other five dimensions. Despite its critics, there has been a great amount of research that has attempted to develop theoretical accounts of the Big Five.

While prior critiques of law enforcement personality research had pointed out that the psychometric instruments used were intended for clinical purposes, a myriad of research has provided evidence for the predictive validity of those tools in investigating the police personality as well as the "successful" profile. The latest introduction of the Big Five concept provides a different approach to exploring the earlier waves of research in literature. Nevertheless, research in the four waves of personality in law enforcement personnel is still ongoing.

See Also

Big Five
Personality and Forensic Psychology

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Personality and Forensic Psychology

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Personality comes into play wherever people interact or make decisions. So, the law – that highly structured system where police, defendants, lawyers, jurors, and judges interact to reach decisions about guilt and liability and punishment – should be a fertile place to study personality. However, with a few notable exceptions that we describe below, psychologists who study the legal system have largely neglected the study of personality.

One key reason for this neglect of personality is that the field of legal psychology is explicitly applied. Researchers tend to be focused on assessing the effectiveness of legal procedures and on finding ways to improve the accuracy of legal judgments. For example, one of the most heavily researched areas in legal psychology is eyewitness identification. Researchers have examined the factors that influence eyewitnesses' memory of a criminal event, the type of questioning procedures that elicit accurate memories, how a suspect lineup should be constructed, and the persuasiveness of eyewitnesses when testifying in court (Costanzo & Krauss, 2018). While it might be interesting to know how the personality traits of the eyewitness shape the accuracy of eyewitness identification, the impact of personality on accuracy is likely to be negligible. More important, unlike questioning procedures or lineups, the personality of the eyewitness is not under the control of the legal system. The legal system cannot arrange for only introverts or people high on conscientiousness to be around to observe a crime. Because the legal system has little control over the personality characteristics of victims, witnesses, defendants, lawyers, judges, and jurors, research on personality characteristics holds limited potential for improving legal procedures.

There are, however, a few areas where legal / forensic psychologists have found it useful to explore the impact of personality and individual differences. One of these areas is police interrogations and false confessions. Along with mistaken eyewitness identification and faulty forensic testing, false confessions are a major source of wrongful convictions (www. innocenceproject.org). Confessions researchers have sought to identify the characteristics of suspects that raise the risk of false admissions. Although the main suspect characteristics

that increase the vulnerability of a suspect – youth, cognitive impairment, and mental illness – are not personality traits, some traits have been shown to be associated with the tendency to offer false admissions. Specifically, Gisili Gudjonsson and his colleagues (Gudjonsson, Sigurdsson, & Einarsson, 2004; Gudjonsson & Pearce, 2011) have identified two personality traits – suggestibility and compliance – that increase the probability of a false confession. Suggestibility refers to a tendency for a suspect to accept information communicated during interrogation as true, and to incorporate misleading information from external sources (principally police interrogators) into personal memories of a crime. This trait puts suspects at risk because, during interrogation, police detectives often lie to suspects about the existence of incriminating evidence. This false evidence may be accepted by highly suggestible suspects and may even distort their memories of events.

The second trait identified by Gudjonsson is compliance, which refers to the tendency to acquiesce to interrogators' requests to confess to committing a crime. Highly compliant suspects may change their account of what happened in exchange for the immediate gain of being released from the intense stress of the interrogation room. The two factors underlying compliance are an eagerness to please others and a strong desire to avoid conflict and confrontation (Gudjonsson, Sigurdsson, & Einarsson, 2008). Research has demonstrated that false confessors score higher on interrogative compliance and suggestibility than non-false confessors (Gudjonsson, 2010). Although knowing a suspect's suggestibility and compliance scores cannot reveal whether his or her confession is true or false, information about such scores is sometimes provided by experts at trial to assist the trier of fact (a judge or jury) in assessing the validity of a confession.

Juries are another area of legal psychology where understanding of personality variables might be helpful. The personalities of individual jurors might be expected to influence how evidence is evaluated and how verdicts are decided. However, large-scale studies of the relationships between personality traits and verdicts have generally found only weak associations (Penrod, 1990). A few significant associations have been identified. The construct of "locus of control" has been mildly predictive of verdict in some types of cases. Jurors with a more internal locus of control (i.e. a belief that outcomes in life are largely due their own ability and effort) are somewhat more likely than jurors with an external locus of control (a belief that their outcomes in life are likely due to factors such as luck or powerful others) to acquit a corporation that has been sued by a former employee for wrongful termination or sexual harassment or discrimination. In addition, the personality trait of authoritarianism appears to have some impact on verdict decisions (Shaffer & Wheatman, 2000). Jurors who score high on measures of authoritarianism tend to be more conviction prone in criminal trials and tend to endorse longer prison sentences for crimes such as murder, rape, and child molestation. However, in cases where authority figures like police officers and corporations are being tried, jurors high on authoritarianism are somewhat less likely to convict. Finally, only one of the "Big Five" personality factors has been shown to a role in the jury room: Jurors who score high on extraversion are more likely to be elected foreperson (Clark, Boccaccini, Caillouet, & Chaplin, 2015).

Within the domain of workplace law, sexual harassment is an important area of study for legal psychologists. Much of the research in this area has focused on ways of reducing sexual harassment through employee training and modifications of the workplace

(e.g. removing sexually explicit materials, increasing the percentage of underrepresented groups, and modifying recruitment and promotion procedures) (Glick & Fiske, 2007). However, a few researchers have explored how personality encourages sexually harassing behavior. John Pryor and his colleagues have developed the Likelihood to Sexually Harass (LSH) scale as a means of assessing individual differences in the tendency to engage in illegal harassment (Pryor, 2009). Studies using the scale have found that men with high LSH scores see themselves as stereotypically masculine, support traditional female gender roles, and endorse "rape myths" (e.g. the belief that women want to be sexually overpowered). Fortunately, the tendency to sexually harass is strongly influenced by situational variables. Clear anti-harassment workplace policies can significantly reduce harassing behaviors even for employees with high LSH scores (Willness, Steel, & Lee, 2007).

Clinical-forensic psychologists interested in personality and individual differences have focused primarily on criminality, searching for correlates, and predictors of criminal behavior. Although most research has found that environmental factors (e.g. poverty, childhood abuse, unstable home life) are the main catalysts for criminal behavior, there is a long tradition of research on the criminal personality. Perhaps the most heavily researched constellation of traits in forensic psychology is labeled psychopathy. The defining feature of psychopathy is a lack of empathy and moral conscience. Psychopathy is typically diagnosed using the Hare Psychopathy Checklist Revised (PCL-R). The PCL-R measures a variety of traits common to psychopaths. These traits include the following: glibness and superficial charm, grandiosity, high need for stimulation, manipulation of others, lack of remorse, shallow emotions, callousness, lack of realistic long-term goals, failure to accept responsibility for own actions, pathological lying, parasitic lifestyle, and impulsivity (Hare, 2016). High scores on the PCL are significantly predictive of violence, and people with psychopathic traits are responsible for a disproportionate number of crimes involving deception, social harm, and violence (Skeem, Polaschek, Patrick, & Lilienfeld, 2011).

An even broader set of traits associated with criminality has been termed the *dark tetrad* (Paulhus, 2014). The four overlapping clusters of traits that constitute the dark tetrad are psychopathy, Machiavellianism (calculating manipulation of others), narcissism (grandiosity, self-promotion, and attention-craving), and sadism (enjoyment of cruelty toward others). In studies exploring the relationships between the Five Factor Model and the dark tetrad, the traits of agreeableness and conscientiousness are negatively correlated with dark tetrad traits (Furnham, Richards, & Paulhus, 2013). People possessing a dark tetrad personality usually exhibit such traits in the subclinical range – i.e. they are able to function effectively in most settings and they often escape the attention of mental health professionals. However, the callousness and empathy deficits of people possessing the dark tetrad can lead to highly destructive behavior in the workplace and a proclivity for criminal behavior (Harms, Spain, & Hana, 2014).

The study of personality and individual differences has generally been regarded as useful but not central to the field of legal and forensic psychology. In large part, this is due to legal psychology's focus on variables that can be modified to improve the accuracy of legal decision-making. However, even though personality is not under the control of the legal system, research on the role of personality in legal settings is essential for a full understanding of how psychological science interacts with the law.

See Also

Antisocial Behavior, Assessment of
Antisocial Personality Disorder
Big Five
Dark Triad

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Personality and Consumer Behavior/Lifestyle Analysis

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Classic Contributions of Personality Psychology to Consumer Behavior

One of the earliest and most influential applications of personality psychology to consumer behavior was an approach based on Freud's psychodynamic principles referred to as "motivation research." As a major force in marketing and consumer behavior from the late 1940s to the early 1960s, the field of motivational research was based on the pioneering work of Ernest Dichter, a Viennese psychologist who just happened to live across the street from Freud's famous office and settle in the United States in 1937 (Schumann, Haughtvedt, & Davidson, 2008). At its peak of popularity, motivation research attempted to uncover the deep-seated reasons for purchasing particular products and unconscious influences on decision-making. To overcome the ego's defenses, motivation researchers used many projective techniques (e.g. word association and picture-completion tests) and in-depth, psychoanalytically based interviews to get at these unconscious determinants of buying behavior (Dichter, 1949, 1964; Schumann, Haughtvedt, & Davidson, 2008).

 Motivation researchers also relied heavily on psychodynamic concepts and processes in explaining and interpreting their findings. Some of the early conclusion based on this research included these ideas: wearing suspenders reflects unresolved castration complexes, making cakes symbolizes giving birth, and people do not like to buy prunes because their wrinkled shape brings back memories of parental authority figures (Dichter, 1960). The use of motivation research principles became so popular that in 1957, Vance Packard, a major proponent of subliminal advertising, published *The Hidden Persuaders* as a means of trying to cast "a penetrating light into the murky world of the motivational researchers. It tells how these shock troops of the advertising world are subtly charting your inner thoughts, fears, and dreams so that they can influence your daily living" (p. i). However, there is now considered evidence to discredit the value and effectiveness of the use of the principles of subliminal stimulation as practiced through subliminal advertising – "public

concern over the power of subliminal advertising is quite likely unfounded. Subliminal advertising is, at best, a very weak force" (Vargas, 2008, p. 478).

Contemporary Contributions of Personality Psychology to Consumer Behavior

Although its influence as the driving force in marketing has long since waned, motivation research remains significant in its focus on the underlying reasons that people buy. It has also demonstrated the usefulness of psychological theories (Kotler & Keller, 2016) and assessment techniques (Haugtvedt, Liu, & Min, 2008) in identifying and interpreting consumer behavior patterns (Arnould, Price, & Zinkhan, 2002; Hawkins, Best, & Coney, 2001). For example, the lingering impact of motivation research is the influence of classic Freudian dream analysis on contemporary marketing research through the use of manifest and latent motives to understand the decisions of consumers (cf. Hawkins, Best, & Coney, 2001). Manifest motives are the reasons known to the consumer and admitted to the consumer researcher (e.g. "A luxury car is more comfortable and safe."). Latent motives are reasons and beliefs affecting purchasing decisions that the consumer is unaware of or very reluctant to admit to others (e.g. "This is a powerful and sexy car, which will make me look powerful and sexy, as well show off how successful I am, to others."). As in dream analysis, manifest motives are easily assessed with direct questions (e.g. "Why did you by this car?") while an assortment of projective techniques (e.g. sentence completion, word association, picture response construction techniques) are used to reveal the latent content of the unconscious mind of consumers in an effort by motivational marketing researchers to better understand consumer decisions and develop marketing campaigns (cf. Hawkins, Best, & Coney, 2001; Peter & Olson, 2002). As an indication of the value of such projective techniques, investigators have noted that "these techniques are gaining use again as a way to enhance and enrich the insights that can be gained from more empirical sources" (Hawkins, Best, & Coney, 2001, p. 369).

Needs and Desires Guiding Consumer Behavior

Beyond motivational factors, the emphasis on personality dynamics (e.g. needs and desires) continues to be a major force in contemporary marketing research (Arnould, Price, & Zinkhan, 2002; Berkowitz, Kerin, Hartley, & Rudelius, 2000; Kotler & Keller, 2016). Because both of these forces are represented in Maslow's hierarchy of needs (Maslow, 1954), his viewpoint is be used by marketing managers as "a macro theory designed to account for most human behavior in general terms" (Hawkins, Mothersbaugh, & Best, 2007, p. 364). Marketers and others interested in trying to understand what drives consumers to make purchasing decisions have developed advertising campaigns for products based on their association with meeting certain need categories. When applying Maslow's hierarchy of needs to marketing campaigns, advertisers attempt to convince consumers that purchasing their products will help certain needs. Some illustrative examples of marketing campaigns, paired with each of Maslow's need categories is a series of products, along with specific marketing examples, designed to meet those specific needs.

Physiological Needs

Products designed to meet basic living requirements involving nutrition, rest, and health include food items, sleep products (e.g. mattresses, sleeping pills), exercise equipment, and medical-related supplies and insurance plans, to name just a few.

Safety Needs

Products designed to meet the needs of physical safety and security, stability, and familiarity include smoke detectors, insurance, retirement investments, seat belts, and burglar alarms, to name just a few.

Belonging and Love Needs

Products designed to meet the needs of love, friendship, affiliation, and group acceptance include personal grooming products, group-identity clothing (e.g. social causes or college sweatshirt), and restaurants, to name just a few.

Self-esteem Needs

Products designed to meet the needs for status, self-respect, superiority, a sense of accomplishment, and feelings of usefulness to others include fancy cars, designer clothing, jewelry, expensive liquor, and stylish furniture, to name just a few.

Need for Self-actualization

Products designed to meet the need for self-fulfillment and promoting one's full potential include educational programs, hobbies, vacations, sports, and museums, to name just a few.

In addition, because more than one need category can be met by a specific product, effective advertisements often operate at many different need categories. For example, advertisements marketing camping equipment and supplies could appeal simultaneously to meeting the categories of physiological needs (e.g. food), safety needs (e.g. warmth and comfort), and belonging needs (e.g. camping with others). Such examples, as well as additional research (cf. Yalch & Brunel, 1996), provide support for the validity of Maslow's viewpoint as an important tool in marketing and other business-related applications (Conley, 2007).

Attitudes and Values as the Basis of Consumer Behavior

Psychographic segmentation is a technique in which people's attitudes, interests, values, behaviors, and lifestyle patterns are used to help marketing and advertise products in a manner that fits with the social (e.g. leisure activities) and psychological (e.g. status seeking) profile of a particular segment of the buying public (e.g. young adults) for which the products are being targeted (Kotler & Keller, 2016; Peter & Olson, 2002). One of the most widely used measures of psychographics is the Strategic Business Insights' Values and Lifestyle (VALS2) Program^{TM} (http://www.strategicbusinessinsights.com/vals/). This VALS Programs survey (http://www.strategicbusinessinsights.com/vals/surveynew.shtml) seeks to explain

how and why consumers make decisions by asking individuals to indicate their degree of agreement with a series of 35 attitudinal questions such as "I am often interested in theories," "I often crave excitement," and "I like being in charge of a group." Based on their responses to these items, individuals are grouped into eight VALS types (i.e. innovators, thinkers, believers, achievers, strivers, experiencers, makers, and survivors) and three primary motivational categories upon which they based their consumer decisions: ideals, achievement, and self-expression (www.strategicbusinessinsights.com/vals/ustypes.shtml). Individuals motivated by ideals tend to use beliefs based on their knowledge and personal principles to make consumer decisions rather than on feelings, events, and the desire to seek approval from others. Individuals motivated by achievement tend to base their purchasing decisions for products and services that are likely to demonstrate a sense of success to their peers. Those motivated by self-expression tend to make purchasing decisions in the pursuit of products and social or physical activities that provide opportunities for a variety of experiences, impulsiveness, risking-taking, and the excitement.

Individual Differences as Predictors of Consumer Behavior

The tradition of individual differences utilizes the scores on specific personality measures to predict consumer behavior (Haugtvedt, Liu, & Min, 2008). The Need for Cognition (NFC) scale reflects the extent the amount of time and effort an individual will employ to thinking about a particular course of action, such as making a purchasing decision. Individuals with a high NFC tend to spend more time critically evaluating product information than those with a low NFC. The Need for Uniqueness scale (NFU) reflects the extent to which individuals desire to be independent and different from others. Individuals with a high NFU tend to view scare items as more attractive and valuable than those with a low NFU as a means of maintaining a sense of uniqueness by processing such products. The Need for Closure scale (NFC) assesses the degree to which individuals desire definite and unequivocal knowledge and information. Individuals with a high NFC are more likely to make decisions regarding certain product attributes (e.g. cost) and belief of (e.g. "price equals quality") in an attempt to achieve a sense of closure in product selection than those with a low NFC.

The Propensity for Self-reference scale (PSR) examines the extent to which individuals tend to think about their own experiences when examining product information and making purchasing decisions. While individuals with a low PSR tend to ignore the quality of the information presented to them, individuals with a high PSR may be too focused on their own beliefs and experiences to evaluate thoroughly the quality of information designed to influence their purchasing decisions. The Regulatory Focus Questionnaire (RFQ) measures the extent to which individuals are motivated to make decisions and take action based on an "orientation" (i.e. expectations of goal attainment based on past success) characterized by promotion pride or promotion prevention. Individuals scoring high on promotional pride are more likely to regulate their actions in an effort to achieve the presence or absence of a positive outcome while those scoring high on promotion prevention demonstrate a propensity to regulate their actions in an attempt to prevent or avoidance a negative consequence.

Evolutionary Psychology and Consumer Behavior

A recent development in the study of evolutionary psychology is the application of its principles to consumer behavior (cf. Saad, 2007). A framework for applying evolutionary psychology to consumer behavior is the consideration of gender differences in the underlying principles of sexual selection (see Evolutionary Theory and Personality Correlates of Mate Selection). With sexual selection, males tend to seek females for mates based on youth and beauty as an index of their perceived health and reproductive ability while females tend to seek males for mates based on their social status and ability to provide and share material resources. Consistent with those principles of sexual selection that emphasize the physical appearance of women as a means of increasing their mate potential, women tend to devote more consumer time, money, and energy than men on appearance-enhancing products and services designed to create a more youthful and healthy appearance, such as fashion and clothing concerns, body-consciousness and exercise activities, dieting programs, cosmetic surgery procedures, and tanning salon usage. Consistent with principles based on sexual selection, males tend to spend more time and money than females engaging in a variety of high-risk consumption behaviors designed to demonstrate the accumulation of resources (e.g. wealth), social status, and strength and bravery, such as engaging in more risky financial decision in an attempt to secure greater financial resources and participating in extreme thrill-seeking leisure activities (e.g. skydiving, extreme snowboarding) in an attempt exhibit strength and competitiveness.

Summary and Conclusion

In many ways, the utility of the historical developments in the study of personality psychology is reflected by the application of these improvements to corresponding advances made in the examination of consumer behavior. The earliest applications of personality psychology to consumer behavior were based, as were some of the earliest conceptualizations of personality, on the Freud's theory of the unconscious mind. As subsequent motivational viewpoints based on the expression of personal needs and values emerged in the development of personality psychology, so did their application to the study of consumer behavior. The major progress made by the contemporary tradition of individual differences and the assessment of personality traits and the more recent emergence of evolutionary psychology as a major viewpoint of personality have also had corresponding chronological applications to the study of consumer behavior. And if such a pattern continues, it is likely that the emerging focus emphasizing the neurological perspective on personality will also find an application in the burgeoning study of neuroeconomics and consumer behavior (cf. Egidi, Nusbaum, & Cacioppo, 2008).

See Also

Abraham Maslow
Buss Evolutionary Psychology

Erikson Psychosocial Development Stages
Evolutionary Theory and Personality Correlates of Mate Selection
Maslow's Hierarchy of Needs
Personality and Marketing/Product Design
Projection Techniques, General Features and Methodological Issues
Unconscious processes, expression of personality process

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Marketing and Personality

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The use of individual differences has a long-standing tradition in marketing theory and practice. Ever since Wendell Smith (1956) introduced the idea of market segmentation, marketers have used personal characteristics to distinguish between different "types" of consumers. By dividing consumers into "sub-populations" and addressing their specific interests through customized product features, brand images, or marketing messages, businesses have been able to substantially increase the effectiveness of their marketing efforts. Early segmentation strategies focused primarily on surface-level demographic characteristics, including age, gender, and nationality, to differentiate consumer groups. Although the use of these surface-level characteristics was a first step toward better understanding and serving consumers' diverse needs and preferences, they ended up lumping very different consumer groups into the same category. Adopting separate marketing strategies for men and women, for example, is a broad segmentation strategy that provides some benefit but still ignores the many differences that exist between people of the same gender. It is thus not surprising that marketers in the 1970s became more interested in psychological factors such as attitudes, values, opinions, and personality, which enable a more detailed view of consumers' most fundamental needs and preferences.

Brand Personality

Underlying the idea of using psychological differences for marketing purposes is a simple yet powerful assumption: people buy products and brands not only for what they can do but also for what they mean (Levy, 1959). Products and brands often carry a symbolic meaning that reaches far beyond their mere functionality, serving as a form of self-expression for the consumer. Taking account of this additional layer of meaning, researchers have used the idea of "brand personality" to describe the human characteristics that are associated with a given brand or product (Aaker, 1997). Coca-Cola, for

example, tends to be perceived as cool, All-American, and real, while Pepsi is described as young, exciting, and hip (Plummer, 1985). As illustrated by this example, a strong brand personality gives consumers something to relate to and helps businesses distinguish their products from those of their competitors. However, although researchers agree that consumers imbue products and brands with characteristics that are similar to those used to describe humans, there is an ongoing debate about whether the dimensions that best summarize these characteristics are the same as those found in humans. The most widely used model of brand personality (Aaker, 1997), for example, proposes the five brand personality dimensions of sincerity, excitement, competence, sophistication and ruggedness, which partly resemble the Big Five personality traits but are not identical.

Self-Congruity in Marketing

Given that consumers attribute various psychological characteristics to different brands and products, a key practical question for businesses is how these symbolic meanings can be used to increase marketing effectiveness. Years of cross-disciplinary research on this question have yielded a very consistent answer: Consumers favor products and brands that match their own personality characteristics (e.g. Aaker, 1999; Aguirre-Rodriguez, Bosnjak, & Sirgy, 2012; Sirgy, 1985). For example, an extroverted consumer is likely to prefer products and brands that are perceived to be sociable, exciting, or stimulating. Known variously as "the self-congruity effect," "self-schema matching," or "self-image congruence," this phenomenon has been explained by the fact that purchasing and possessing self-congruent products and brands helps individuals to maintain and enhance a positive self-concept. Purchasing oil paintings or a book on surrealism, for example, helps an artistic person to express and reinforce her self-concept of being a "creative and open-minded individual." The self-congruity effect has been linked to numerous desirable consumption outcomes such as favorable brand attitudes and purchase intentions, product choice, customer satisfaction, brand loyalty, and life satisfaction.

Message-Person Congruence

Following the logic of the self-congruity effect, studies have also shown that consumers respond more favorably to persuasive advertisements that are aligned with their personal characteristics ("message-person congruence"). For instance, persuasive messages can be framed in terms of gaining a potential reward or preventing a potential loss (e.g. "buy this product to be more popular" vs. "buy this product to avoid being alone"). Such message framings tend to be most effective when they are congruent with an individual's habitual focus on pursuing rewards or preventing losses, respectively (Cesario, Grant, & Higgins, 2004). Similar benefits have been observed when framing persuasive messages so that they are congruent with the Big Five personality trait profiles of the target audience (e.g. Hirsh, Kang, & Bodenhausen, 2012; Wheeler, Petty, & Bizer, 2005). An extroverted consumer is thus more likely to take interest in a relatively neutral product (e.g. a cell phone or a perfume) if the marketing messages used to promote it imply sociable, exciting, or stimulating

characteristics (e.g. highlighting "excitement" or "being in the spotlight" as resulting from product purchase). It has been suggested that the positive effects of personality-matched communications derive from the feelings of "rightness" or "fit" experienced by consumers when decoding the messages. These feelings, in turn, lead to a more positive evaluation of the message content and ultimately in more favorable behaviors.

Personality and Digital Marketing

Insights about the benefits of self-congruity and message-person congruence have been used by marketing professionals to create products, brands, and advertising messages that reflect the characteristics of their desired consumer audiences. However, the practical ability to target consumers on the basis of their psychological profiles has been limited by the reliance on questionnaire-based self-assessments of psychological traits. Although researchers can easily gather such assessments in the laboratory, obtaining them from consumers in the real world has been more of a challenge. With the steady growth of online commerce and the wealth of information on consumers that comes with it, however, this could change. Researchers have recently found that an individual's Big Five personality profile can be reconstructed using information gained from online sources, including personal websites (e.g. Marcus, Machilek, & Schütz, 2006), Facebook or Twitter profiles (e.g. Golbeck, Robles, Edmondson, & Turner, 2011; Kosinski, Stillwell, & Graepel, 2013), and natural language use (e.g. Schwartz et al., 2013). Compiling these digital footprints makes it possible to estimate an individual's personality profile without administering any personality questionnaires. Knowing that liking "Lady Gaga" is related to high extroversion, for example, would allow marketers to identify and target "extroverted audiences" by examining recent search queries on Google, songs listened to on Spotify, or preferences listed on Facebook.

Support for the effectiveness of this technique in real-life digital advertising comes from an experimental study demonstrating that personality-based targeting using computer-estimated personality profiles indeed results in higher click-through rates, conversion rates, and return-on-investment (Matz, Chan, Popov, Stillwell, & Kosinski, 2014). Consumers who were identified as extroverted showed a preference for extroverted products and advertising messages, while consumers identified as introverted tended to favor introverted products and messages. Modeling consumer personality profiles based on the content of Twitter posts has similarly been found to improve the performance of online retailers' product recommendation systems by enabling personality-tailored suggestions (Adamopoulos & Todri, 2015).

While the use of digital footprints to estimate consumer personality profiles enables new forms of market segmentation and message tailoring, it still only constitutes a first step in the potential of digital marketing efforts to become more personalized and effective. Having direct access to consumers' personal Facebook profiles or search queries, for example, makes it possible to narrow down segmentation approaches to the level of the individual, where each consumer constitutes an idiosyncratic "segment" in its own right. Flexible modeling of psychological characteristics at the individual level could advance personalized marketing beyond the exclusive use of static personality traits to also include dynamic states such as consumers' current moods or emotions.

Ethics of Personality and Marketing

Taken together, the ability to estimate psychological characteristics without requiring consumers to complete any self-report questionnaires provides novel opportunities for implementing the well-established research on personality and marketing in the real world. However, it also raises ethical questions about the appropriateness of using information about users' personal characteristics without their consent. From a consumer's perspective, these questions are relevant to concerns about personal control, self-determination, and privacy. Considering that businesses rely on consumers' trust and loyalty, concerns about privacy breaches can, in turn, present a reputational risk for businesses. It should therefore be of the utmost importance that researchers and businesses integrate personality-based marketing in a responsible and transparent way that makes consumers part of, rather than simply the object of, marketing customization. For example, businesses could help consumers better understand their targeting mechanisms (e.g. "we have shown you this bungee jumping advertisement because we believe that you are an extroverted person") and even invite them to actively change their predicted profiles in case they disagree with the predictions. Such an approach helps businesses to maintain users' trust by establishing a mutual agreement of "giving and taking" that is beneficial for both sides.

See Also

Big Five
Personality and Consumer Behavior/Lifestyle Analysis

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Personality, Interests, and Careers

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Overview

> *We inherit dispositions, not destinies. Life 'vocational' outcomes are consequences of lifetimes of behavior choices. The choices are guided by our dispositional tendencies and the tendencies find expression within environmental opportunities that we actively create.*

(Rose, 1995, p. 648)

In the above quote, Rose perfectly captures the intersection of work and individual differences or "dispositional tendencies." Paid work for many people is their occupation or career while for others paid work is a job or series of jobs. Career is differentiated from a *job* in that most careers are associated with personal meaning beyond earning an income. Most people pursue one or more careers over the course of their lifetime, and this pursuit is influenced by individual differences.

Two critical individual differences are interests and personality; both are stable across the life span. Interests are people's preferences for pursuing certain activities and avoiding other activities. Personality is one's characteristic pattern of thinking, feeling, and behaving. Interests and personality independently and combined have been shown to predict educational and career outcomes. Scholarship has helped discern the nature of their relationship, yet more research is needed to understand the extent to which they influence people's educational and career paths.

History and Intellectual Context

The individual difference tradition, which emerged around the start of the twentieth century, has been important to the study of careers since the inception of vocational psychology. It emphasized that people's traits can be measured and described as falling

along a normal distribution. A person's uniqueness is defined as the extent to which her/his score on that trait is more than one standard deviation from the "average" person's score. When looking at several traits, each person can be described as unique in relation to how they scored relative to others (e.g. she is extraverted, interested in enterprising activities, and uninterested in investigative activities). Around the same time, the United States was adjusting to its transition from being a largely agricultural to a manufacturing society. To help young men find suitable employment, Frank Parsons, an educator and social reformer, pioneered the vocational guidance movement and promulgated the concept of person-environment (P-E) fit, which proposes that people will be most satisfied in work that is congruent with their skills. Individual differences and P-E fit were critical to service member testing and placement during both world wars, and they also were a major impetus behind the proliferation of career development theories in the 1950s. They remain a vital force in the field, evidenced by the inclusion of a "Personality, Interests, and Careers" chapter in this volume.

Theoretical Underpinnings

The most influential theory of individual differences and career development has been John Holland's P-E fit theory. Originated in the 1950s and revised in 1997, it expanded on Parsons' concept of matching jobs with individuals' skills and posited that a good match between the individual's interests and the work environment is likely to result in better career outcomes. Holland articulated six interest types: realistic (mechanical, practical, working with one's hands, being outdoors), investigative (scientific, analytic, problem-solving), artistic (creative, musical, originator), social (serving/helping others), enterprising (persuading/managing others), and conventional (organizing/working with data/numbers). These interests are commonly referred to by the acronym RIASEC and often measured with the well-known Strong Interest Inventory. Holland also assumed work environments could be described as some combination of those six domains (e.g. farming or engineering would be considered realistic environments). Holland's theory defined P-E fit as congruence; congruence is often measured by assigning a RIASEC code to operationalize a person's interest (e.g. RIS meaning the top three interests for that person are realistic, then investigative, then social) and a similar strategy to label an occupation. Congruence is thought to predict satisfaction, choice, and performance.

Another widely known vocational theory is Social Cognitive Career Theory (SCCT), developed by Robert Lent, Steven Brown, and Gail Hackett in 1994. Adapted from Albert Bandura's social cognitive theory, SCCT emphasizes the central role of vocational self-efficacy across the six RIASEC domains in influencing academic performance, career choice, and career interests. Vocational self-efficacy can be defined as people's confidence to competently execute a task or be effective in an occupation. Thus, SCCT postulates that people with higher domain-specific vocational self-efficacy will be more likely to excel academically in that domain, be interested in pursuing that domain, and choose that domain as an academic major and career. Vocational interest in this model is seen as more determined by vocational self-efficacy although there is evidence to support that the effect is bidirectional. Personality in this model is considered as influencing educational and career

outcomes through vocational self-efficacy. In a large meta-analysis, Sheu and colleagues (2010) confirmed domain-specific vocational self-efficacy as a direct predictor of choice goals, and they also found that self-efficacy relates indirectly to choice goals via vocational interest.

Interests and Career

Interests are the most frequently assessed construct in career counseling. Interests typically begin to develop in early childhood and stabilize as individuals enter adulthood. Rather than forming a hexagon, the structure of Holland's six interest types seem to be circular in nature. This circular structure has been shown to apply across gender and most US racial and ethnic minority groups but may not fit well with international samples. Holland's assertion that congruence or P-E fit, measured as a three-point Holland code for the person and the environment, would predict job satisfaction has received nominal support. However, vocational interest research using the Strong Interest Inventory has overwhelmingly showed that people across the lifespan seek out vocational environments consistent with their vocational interests, stay longer in those careers, and are typically more satisfied in those careers. Moreover, there is evidence that when people change jobs, they choose environments more congruent with their interests. We also know that interests and self-efficacy across the RIASEC can substantially differentiate college students' level of educational aspirations.

Beyond Holland's theory, vocational interests have long been identified as more specific than the six RIASEC interests. For example, investigative interests include mathematics and science interests. Across multiple studies, specific interests can accurately differentiate among families of academic major and occupations much better than the six RIASEC domains alone (e.g. Gasser, Larson, & Borgen, 2007). Moreover, when domain-specific self-efficacy (e.g. mathematics self-efficacy, engineering self-efficacy) as a set of predictors is added to specific interests, the differentiation of academic majors and/or occupations across diverse fields and populations is even more impressive. In sum, vocational interests are potent predictors of educational aspirations, academic major choice, and career choice.

Personality and Career

Two personality models that have received the most attention in vocational psychology are the Five Factor Model ("Big Five") and the Three Factor Model ("Big Three"). The Big Five consists of five dimensions: neuroticism (sometimes referred to as "emotional stability"), extraversion, openness to experience, agreeableness, and conscientiousness. The Big Three identifies three higher-order dimensions: positive emotional temperament, negative emotional temperament, and constraint, which captures behavioral regulation. The Big Three is further divided into 11 primary, lower-order traits.

Personality traits have been mostly examined in the world of work (see Judge, Heller, & Mount, 2002, and Barrick & Mount, 1991, for excellent meta-analyses). More frequent job search behaviors over a longer duration have been modestly correlated with extraversion,

openness, and conscientiousness. Number of job offers received has been modestly correlated with extraversion, openness, and agreeableness. Modest effect sizes have been found for the relation of neuroticism, extraversion, and conscientiousness with job satisfaction. Positive emotional temperament also has been positively associated with job satisfaction and negatively associated with job turnover. Conversely, negative emotional temperament has been negatively associated with job satisfaction and positively associated with job turnover.

A critical career-related outcome is job performance. Job performance is often described in broad terms (global job performance) or in terms of specific facets of the job (e.g. instrumental and contextual job performance). Conscientiousness is the only Big Five personality trait correlated across global job performance and all subscales, including organizational citizenship behavior. Extraversion and openness have been correlated with the specific domain of training proficiency.

Turning to college students, in separate studies, the Big Five and the lower-order primary traits of the Big Three did add significantly to the discrimination of families of academic majors. Finally, the Big Five discriminated among different levels of educational aspirations. The contribution of personality traits to the prediction of academic major or educational aspirations is modest in comparison to the contribution of interest and/or self-efficacy. In summary, personality traits from the focal models have been mostly correlated with career outcomes in the world of work.

A Framework for Integrating Vocational Interests, Personality, and Career

Multiple meta-analyses (e.g. Larson, Rottinghaus, & Borgen, 2002) have found significant overlap between personality and interests, suggesting related yet distinct traits. Of the 30 possible relationships between the six Holland interest types and the Big Five traits, at least six appear to be meaningful across gender. Investigative and artistic interests overlap with openness to experience. Social interests overlap with extraversion and agreeableness. Enterprising interests overlap with extraversion. Conventional interests overlap with conscientiousness only for men completing the Strong Interest Inventory. More precise interest-personality linkages were shown with Holland's RIASEC and the lower-order primary traits of the Big Three. In this meta-analysis, enterprising and social interests were more clearly differentiated from each other with enterprising interests being positively related to social potency (forceful and decisive), while social interests were positively related to traditionalism (social conservative) and negatively related to aggression (victimizer). Moreover, realistic interests and investigative interests showed overlap with the inverse of harm-avoidance (chooses safe and boring over danger), and investigative interests overlapped with achievement (works hard). Finally, artistic interest overlapped with absorption (entranced by evocative sights and sounds), and social and enterprising interests overlapped with social closeness (sociability).

In their seminal article, Ackerman & Heggestad (1997) presented meta-analytic evidence that the six interest domains, the Big Five, the lower-order traits of the Big Three, and different domains of cognitive ability could be integrated into four *trait complexes*.

They include science/math, intellectual/cultural, social, and clerical/conventional. The trait complexes have been found accurate in retrospectively differentiating adults' college majors.

Future Directions

A primary task for scholars of individual differences and vocational psychology is to generate new knowledge. Additionally, this area will be served by the integration of existing knowledge; this should come in the form of meta-analyses and conceptual reviews. Knowledge then needs to be disseminated to a wider audience. Necessary populations include vocational counselors and other practitioners in the field, undergraduate students, and scholars in related disciplines. Relatedly, individual difference and vocational psychology scholars must engage in interdisciplinary sharing and collaboration outside of their niche areas. Fruitful work will come from collaboration with psychological areas like industrial/organizational, clinical, social, and developmental. Lastly, the field must continue to stay in touch with the multicultural zeitgeist. Traditional lines of inquiry have neglected diverse, nondominant groups; the field has an ethical obligation to correct this disparity, promote social justice, and keep pace with a world of work that will continue to become increasingly global and cross-cultural.

See Also

Big Five
Career and Vocational Interests Abilities, Assessment of
Conscientiousness
Eysenck Giant 3
John Holland

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Personality and Counterproductive Work Behavior

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Workplace deviance, also known as counterproductive work behavior (CWB), antisocial workplace behavior, and workplace aggression, is defined as voluntary behavior that harms (or is intended to harm) the organization (CWB-O, e.g. theft, absenteeism, sabotage) or its members (CWB-I, e.g. violence, incivility, gossip; Bennett & Robinson, 2000). Although workplace deviance may be in response to organizational variables such as perceived injustice, a large body of research has shown that individuals may be predisposed to engage in these types of behaviors.

The majority of this research examining individual antecedents of workplace deviance has focused on the Big Five personality variables: conscientiousness (organized, thoughtful, and responsible), agreeableness (considerate, trusting, and kind), neuroticism (anxious, insecure, and worrying; versus emotional stability), extraversion (sociable, assertive, and outgoing), and openness to experience (imaginative, original, and curious). A meta-analysis conducted by Hastings and O'Neill (2009) found that the Big Five personality traits explained 35% of the variance in CWB.

Within the Big Five, workplace deviance is most consistently and negatively related to, or predicted by, conscientiousness and agreeableness. A meta-analysis by Grijalva and Newman (2015) found correlations of -0.44 for agreeableness, and -0.35 for conscientiousness with measures of deviance. Conscientiousness is more strongly associated with CWB-O while agreeableness is more strongly associated with CWB-I (e.g. Berry, Ones, & Sackett, 2007). Neuroticism has also been positively linked to workplace deviance (Grijalva & Newman, 2015). Marcus, Lee, and Ashton (2007) found that emotional stability (the reverse of neuroticism) was negatively correlated with CWB. Additionally, Garcia, Wang, Lu, Kiazad, and Restubog (2015) found that neuroticism predicted CWB based on archival data 18 months later. Some studies have found a weak negative relationship between deviance and extraversion (e.g. Mount, Ilies, & Johnson, 2006). However, meta-analyses and other studies find no link (Berry et al., 2007; Marcus et al., 2007) or even a positive link (Lee, Ashton, & Shin, 2005) between CWB and extraversion. Similar results were found

when examining the CWB-openness relationship (e.g. Berry et al., 2007; Judge, LePine, & Rich, 2006; Mount et al., 2006).

Narrower facets of the Big Five traits have also been linked to workplace deviance. Hastings and O'Neill (2009) found that, together, a facet of each overall trait explained 33% of the variance in CWB. Specifically, excitement seeking (extraversion facet) and anger (neuroticism facet) positively predicted CWB while cooperation (agreeableness facet), dutifulness (conscientiousness facet), and emotionality (openness facet) negatively predicted CWB (Hastings & O'Neill, 2009). Similarly, meta-analytic results show that achievement (hard working, focused, and ambitious; conscientiousness facet), nondelinquency (follows laws, rules, and norms; conscientiousness facet), and cooperation (trusting, compliant, and noncritical; agreeableness facet) all have a negative relationship with counterproductive behavior while attention seeking (loud, entertaining, and boastful; extraversion facet) has a positive relationship with counterproductive behavior (Drasgow et al., 2012). Some research has also explored the interaction between personality traits on workplace deviance (Burns, Morris, & Wright, 2014). Dutifulness (the interaction or combination of conscientiousness and agreeableness), and purposefulness (the interaction between conscientiousness and emotional stability) both negatively predicted CWB above and beyond the individual traits (Burns et al., 2014).

Since the development of the HEXACO model, personality researchers have started exploring a sixth trait, honesty-humility (H-H; Lee & Ashton, 2004). Those with this trait are sincere, cooperative and fair, and lack greed and conceit. There is also a sub-category of the trait called trait fairness, defined as an avoidance of cheating, lying, or stealing. Honesty-humility negatively predicted overall CWB, CWB-I, and CWB-O (O'Neill, Lewis, & Carswell, 2011). Similarly, trait fairness also negatively predicted CWB, CWB-I, and CWB-O (O'Neill et al., 2011). Furthermore, there is evidence that both honesty-humility and trait fairness predicted CWB above and beyond conscientiousness, agreeableness, and neuroticism (O'Neill et al., 2011).

Counterproductive work behavior has also been linked to the dark triad, a constellation of narcissism, Machiavellianism, and psychopathy. Those high in narcissism hold a grandiose sense of self-importance, a tendency to feel entitled, and are often arrogant and exploitative. Those high in Machiavellianism have a tendency to use manipulative tactics to get their way, lie frequently, and take revenge against others. Finally, those high in psychopathy lack empathy and social regulatory mechanisms, tend to be impulsive, and lack guilt or remorse. A meta-analysis found that, together, the dark triad explained 28% of the variance in CWB (O'Boyle, Forsyth, Banks, & McDaniel, 2012).

Of the three dark triad traits, narcissism has the strongest relationship with workplace deviance (O'Boyle et al., 2012). In fact, a meta-analysis found that narcissism explained an extra 9.2% of the variance in CWB above and beyond the Big Five traits (Grijalva & Newman, 2015). Facets of narcissism have also been linked to workplace deviance (Grijalva & Newman, 2015). Specifically, leadership/authority (L/A; wanting to have authority over others) was negatively associated with overall CWB and CWB-O, and entitlement/exploitativeness (E/E; feelings of entitlement and manipulative behavior) was positively associated with overall CWB, CWB-I and CWB-O (Grijalva & Newman, 2015). Machiavellianism is also positive associated with both CWB-I and CWB-O although psychopathy appears to be unrelated to both forms of workplace deviance.

Researchers have also looked at specific personality traits as predictors of workplace deviance. Trait anger refers to a predisposition to experience anger and respond with hostility. Trait anger is positively related to various measures of workplace deviance like overall CWB, CWB-I and CWB-O, as well as with aggression directed toward both individuals and the organization (Hershcovis et al., 2007). Those high in negative affectivity tend to experience general distress and aversive mood states such as anger and nervousness. Negative affectivity has been positively linked to CWB, interpersonal and organizational aggression, overall workplace aggression, and organizational retaliatory behavior.

A small number of workplace deviance studies have examined other personality variables. For instance, Douglas and Martinko (2001) found that workplace aggression is negatively correlated with self-control and positively correlated with a hostile attributional style. Individuals with a hostile attribution bias are also more likely to exhibit CWBs (CWB-O, CWB-I, and relational aggression). Having an external locus of control (believing that others control outcomes) is positively associated with engaging in deviant behaviors such as sabotage. Finally, overall CWB was positively correlated with humorousness, manipulativeness, risk taking, and seductiveness, and was negatively correlated with integrity, and religiosity. These six traits significantly predicted CWBs above and beyond the Big Five traits (O'Neill & Hastings, 2011).

Extant research has identified numerous personality traits that seem to be empirically related to organizational deviance. How these traits interact with each other and with organizational conditions remains a potentially fruitful avenue of research. Understanding the role that personality plays in predicting workplace deviance may provide both greater conceptual understanding of counterproductive behaviors and identify avenues for potential organizational interventions. The identification of personality predictors of workplace deviance may, for example, provide a basis for employee selection or provide the basis for identifying individuals for early intervention.

See Also

Dark Triad
Honesty
Hostility, Personality Correlates
Neuroticism

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Friedman, Howard

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Introduction

Howard S. Friedman is a pioneering scientist who has shifted our thinking about personality and health in meaningful ways. After receiving his A.B., magna cum laude, at Yale University in 1972 he went on to complete a Ph.D. in social psychology, mentored by Robert Rosenthal, at Harvard University in 1976. His doctoral work focused on the role that facial expression of emotion plays in verbal communication and throughout the late 1970s and early 1980s a primary focus of his efforts was on nonverbal expressivity and skill. This work included study of the process of emotional contagion and the ways in which nonverbal skills might be harnessed to improve the communication between physicians and their patients. Key changes in training models for medical students can be traced back to some of these findings and ideas, and his influence is also reflected in empirical trajectories in the area of medical interactions. He also codeveloped the widely used *Affective Communication Test* (Friedman et al., 1980), which has become an important tool for emotional expressivity researchers and which continues to have a major influence on viral marketing research (using emotional elements of social networks to produce exponential increases in product or message awareness). Thus, although trained as a social psychologist, Friedman's interests were always heavily health-related – he was a health psychologist when the label and formal training in the field were uncommon. He was also a genuine teacher-scholar.

From the mid-70s, Friedman had been dedicated to applied psychological research, particularly aspects related to health; in the early 1980s he began to place more emphasis on education in health psychology. He worked to develop one of the first model courses in health psychology (NSF-funded), and in 1983 he participated in the Arden House National Conference on Education and Training in Health Psychology. He co-wrote the first (authored) textbook in health psychology, and he chaired or advised on a series of health psychology training conferences throughout the 1980s for graduate students, postdoctoral students, and faculty in health psychology. A consummate mentor, Friedman's honors

include the University of California's Distinguished Teaching Award (1995), the Western Psychological Association's Outstanding Teaching Award (2000), and the title of distinguished professor at the University of California, Riverside (2000). Friedman's most important contributions, however, have been made at the intersection of personality and health psychology.

Beginning in the late 1980s, Friedman's research increasingly emphasized personality and psychosocial precursors of physical health outcomes, and the interactive pathways by which they influence health. Two especially influential early articles were meta-analyses – one identified a generic "disease-prone" personality (Friedman & Booth-Kewley, 1987) and the other quantitatively reviewed the psychological predictors of heart disease (Booth-Kewley & Friedman, 1987). These articles demonstrated that multiple health and psychosocial factors must be considered simultaneously, rather than focusing on individual components and diseases, and they fueled a great deal of interest in (and new research on) the interface of psychosocial factors and health.

Soon thereafter followed two edited books, *Personality and Health* (Friedman, 1990) and *Hostility, Coping, and Health* (1992) both of which have been used extensively by professionals and graduate students interested in the processes by which personality and psychosocial elements interact with biological features to create unique outcomes. Although the work cited here has been influential in the scientific community, Friedman has always been committed to bringing empirical findings to lay audiences. Toward this end, he has conducted hundreds of interviews with members of the scientific and popular press (including *The Washington Post*, *The New York Times*, *Science News*, PBS, BBC, CBS, and ABC) on a variety of health-related topics; and his popular 1991 book, *The Self-Healing Personality: Why Some People Achieve Health and Others Succumb to Illness,* has been reprinted six times (including French, German, Romanian, and Polish). This term, the "self-healing personality," is now widely adopted.

In 1990, Friedman began a new and innovative research program, tapping the vast archives of Terman's Life-Cycle Study (begun with 1,528 10- to 11-year-olds in 1921) to longitudinally and prospectively study the integration of personality, emotion, and health. By taking a social science approach to questions about what promotes longevity and health, he began to formulate a life-pathways approach to understanding the complex interactions that define our lives and health. This technique approximates what is now called life-course epidemiology. As the principal investigator on this project, Friedman put together a top-notch, interdisciplinary team, and a successful strategy – this team has published articles on precursors, pathways, and interactions among psychosocial and physical health variables (including personality, parental divorce, sexuality, mental health; marital stability, family relations, and bereavement), as well as numerous book chapters.

The first, and still most heavily cited of the empirical articles was one that appeared in the *Journal of Personality and Social Psychology* entitled "Does Childhood Personality Predict Longevity?" (Friedman et al., 1993). The major finding here was that childhood personality, especially the trait of conscientiousness, was predictive of mortality risk across the life-span. This paper's publication inspired a flurry of new research into personality and health and the importance of conscientiousness as a key psychosocial predictor has been replicated and confirmed (e.g. Bogg & Roberts, 2004; Kern & Friedman, 2008). The published findings from this project were integrated into a book for lay audiences, released

in 2011, titled *The Longevity Project – Surprising Discoveries for Health and Long Life from the Landmark Eight-Decade Study* (Friedman & Martin, 2011); it has since been reissued in multiple languages.

The findings from this study provided fodder for additional theory-building, and Friedman's more recent work includes pieces that take on more complex integrations and address large-scale understandings of personality, health, and well-being (e.g. Friedman, Kern, & Reynolds, 2010; Friedman & Kern, 2014). For example, his conceptualizations of the driving forces behind our actions, choices, and experiences as "dynamisms, mechanisms, and tropisms" argues for a change in the way we think about stress and coping, and that the stressors we encounter are not random, but in fact are set in motion by biological predispositions and early life experiences (Friedman, 2000). Similarly, he cautions policy makers against making broad recommendations that fail to take into account individual personalities and the life paths on which people are already traveling.

See Also

Individual Differences in Coping with Stress
Personality and Health
Personality and Longevity
Personality and Well-Being
Type A/B Personalities

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Furnham, Adrian Frank

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Adrian Frank Furnham is currently adjunct professor at the BI Norwegian Business School in Oslo. Previously he was professor of psychology at University College London (1992–2018), visiting professor at the University of Hong Kong's Business School (1995–1997), and visiting professor at the Henley Management College (1999–2001). He is also a distinguished broadcaster, motivational speaker, and consultant to major international companies on leadership, management, and organizational behavior. His research falls within the domain of personality and social psychology, broadly defined.

For many years, Furnham has ranked among the world's most prolific psychologists. He has published extensively on topics as diverse as cross-cultural psychology, economic psychology, lay theories, leadership and management, personality disorders, psychology of money, self-estimates of intelligence, and the Protestant work ethic, which his lifestyle exemplifies.

Personal Details

Furnham was born on February 3, 1953, in Port Shepstone, South Africa (SA) to British parents Leslie Frank Furnham and Lorna Audrey (née Cartwright). Following his primary and secondary education in Pietermaritzburg (KwaZulu-Natal, SA), he went on to obtain, initially (in 1973), a B.A. honors and, subsequently (in 1975), an M.A. (by research) in History, Psychology, and Theology. In 1976, he was awarded, by the London School of Economics, an M.Sc. with distinction in Economics, and by the University of Strathclyde, an M.Sc. in Psychology (by research). He then went on to pursue a PhD at the University of Oxford under the supervision of Michael Argyle on the topic of person-situation interaction, which he was awarded in 1981. This was the first of three doctorate degrees, the other two conferred on the basis of selected publications, from the University of London in 1991 (D.Sc.) and from the University of KwaZulu-Natal in 1997 (D.Litt.).

In 1981, Furnham was appointed lecturer in the Department of Psychology at University College London, with promotions to reader in Psychology in 1988, and to professor of psychology in 1992. He is also honorary professor at the University of KwaZulu-Natal (2015–) and adjunct professor at the Norwegian Business School (2009–). Previously, he held visiting professorships at the School of Business in the University of Hong Kong (1995–1997) and at Henley Management College (1999–2001).

Since 1990, he has been married to Dr. Alison Green, whom he met during his doctoral days at Oxford. They live in central London together with their son, Benedict.

Research Topics and Key Contributions

Furnham's research contributions are so diverse and extensive as to defy classification and straightforward summary. Perhaps a valid integrative influence may be found in the writings and general scientific approach of Hans J. Eysenck (cf., hypothetico-deductive empiricism), whom Furnham regards as one of his scientific heroes. The sheer size and magnitude of his outputs make it difficult to identify Furnham's most important contribution to the science of psychology, all the more so because said outputs have not been cast within the framework of a readily identifiable theory. Having worked in almost every area of psychology, he has stood firmly against the strong trend toward early and rigorous over specialization that is becoming characteristic of the discipline. Indeed, it is rather difficult to disagree with his observation that no serious behavioral question is the exclusive purview of one branch of psychology.

In Furnham's own opinion (Furnham, 2017), his research on culture shock (which has yielded what still remains his best cited book), on the psychology of alternative medicine, and on the psychology of money represents his best work, to which I would personally add his contributions to the literature on the Protestant work ethic. However, it is his voluminous work (over 50 publications to date) on self-estimates of intelligence, which has been most influential and which I have attempted to summarize below.

People who are asked to estimate their IQ tend to provide estimates up to one standard deviation (15 IQ points) above average, with male IQ self-estimates consistently higher (about 5–15 IQ points) than female self-estimates. Extending this research into multiple intelligences revealed deep-seated stereotypical judgments, with males estimating their numerical and mathematical intelligence higher than females, but females estimating their emotional intelligence higher than males. Fascinatingly, these differences seem to be cross-culturally stable and intergenerational, with grandfathers rated as more intelligent than grandmothers, fathers more intelligent than mothers, but mothers more emotionally intelligent than fathers. Such has been the influence and significance of this work that it seems to have spurred a new research area, complete with methodological, cross-cultural, and meta-analytic studies.

Working Style and Attitudes to Publication

Furnham describes himself as a well-adapted workaholic. A morning person, he starts work about 6 a.m. and finishes around 5 p.m., often for an after-dinner speech or spot of

management consultancy or to write a newspaper column. That is during periods when he is actually in London because one will regularly find him globetrotting on various assignments and projects.

Behind his productivity lies the example of his scientific role-models, most of whom were extraordinarily prolific. Work is his only real passion, which he sees as "more fun than fun" and which is why he has been spotted in the office at weekends or scribbling at the beach on holidays. His only publishing strategy, if it may be called that, is to follow his heart and work on topics that he finds stimulating. At any one time, he could be working on a dozen papers and three books on different topics.

Furnham is nonconformist with respect to publication outlets. He believes a good journal is one that is widely read and keeps up to date, and points out that enjoyable and pioneering journals do not necessarily have high impact factors. Furnham has published in hundreds of journals and is one of the world's most highly cited psychologists without ever having to bow to the obsessionality of ostensibly elite journals that place inordinate emphasis on conservativism and extra-scientific minutiae to the detriment of creativity, originality, and innovativeness. He often recounts how Argyle once said to him, "Why spend all the effort on writing a paper for *Psychological Bulletin* when it takes the same effort to write a book? Why not write a book and you can actually make some money as well!"

His speedy style of work and lack of reverence for the increasingly pernickety publishing rules and regulations may be considered anti-normative in modern-day academia. In any case, they have frequently pitched him against ideological reviewers, who reject all papers that do not fit their particular theoretical or statistical agenda, and fetishistic editors, who refuse to even send submissions out for peer review unless they have been formatted according to the latest edition of the APA publication manual.

Tips to PhD Students and Young Researchers

According to Furnham, learning to cope with rejection is a sine qua non for a successful career in academia. Having been exposed to over 5,000 review commentaries, he is well aware of the likelihood of experiencing vitriolic rejection by bitter peers with an ax to grind. He has seen many a researcher become disillusioned and broken by negative reviews. Interestingly, Furnham, who has collaborated with hundreds of co-authors from widely different ages, backgrounds, and disciplines, has noticed that women and younger researchers are disproportionately likely to be put off by venomous rejections, which may have something to do with the continuing under representation of women in professorial posts.

Faced with rejection, Furnham's advice is to set the reviewers' comments aside for a day or two and revisit them with a cool head and a view to determining whether they establish any theoretically or methodologically irrecoverable errors. If not, the manuscript should be swiftly revised and resubmitted. He also advises authors to avoid his, temperamentally inflicted, casual attitude to journal selection that has been the source of much frustration over the years. Rather, an author should always target outlets carefully, after reading their past four or five issues, and meticulously catering to their particular house style and audience, a blatant case of "do as I say, not as I do," if ever there was one!

Furnham says that budding academics need to do four things to become successful. First, early on, they should publish a critical, systematic, literature review, coupled with a meta-analysis on a hot topic in order to ensure a steady stream of citations for long periods of time. Second, they should design a psychological test because such tests can become very popular and bring recognition. Third, they should get hold of, or create and maintain, a longitudinal sample that can provide waves of increasingly ambitious publications for the rest of their career. Fourth, and last, they should cultivate the ability to sense new trends and move swiftly into nascent topics that have the potential to develop into research fields in their own right.

Fellowships, Awards, and Esteem Indicators

Furnham is Fellow of the British Psychological Society and of the Leadership Trust, Senior Fellow at the Singapore Civil Service College, Academician of the Learned Society of the Social Sciences, and elected past president of the International Society for the Study of Individual Differences. He has served on the editorial board of at least a dozen international journals and as ad hoc reviewer for numerous others as well as for prestigious research grant awarding bodies.

Consistently ranked among the most productive psychologists in the world, Furnham has published well over 1,200 peer-reviewed articles and 80 books. In that respect, it is perhaps worth noting that extraordinary productivity has been identified as a characteristic of genius (Simonton, 1988). Over the years, Furnham has received several honorable citations for his productivity and has regularly featured in lists of highly cited and prominent psychologists. Most recently, he was included in an international list of 200 eminent psychologists in the modern (post-World War II) era, based on citation impact, textbook mentions, and major scientific awards (Diener, Oishi, & Park, 2014).

Beyond academia, Furnham is the founding director of a psychological consultancy, Applied Behavioural Research Associates, which has been operating successfully since 1985 and whose clients have included very major organizations, such as British Airways, the British Army, Credit Suisse, Goldman Sachs, KPMG, Specsavers, and the Ritz hotel, among many others. He has had columns in national newspapers, such as the *Financial Times*, *The Sunday Times*, and *The Daily Telegraph*, and is a regular contributor to national and international radio and television programs, such as those of the BBC, ITV, and CNN.

Furnham is that rare specimen of academic who has successfully overcome the scientist versus practitioner divide that is so evident in all areas of applied psychology. As a researcher, he has avoided the pursuit of academically respectable, but practically futile, topics; as a practitioner, he has resisted becoming outdated and reliant on golden-oldie theories; and as a broadcaster he has persistently challenged conventionalism and pusillanimity. Since 1997, he has maintained an entry in A&C Black's *Who's Who*, where important updates about his life and contributions will continue to be listed for many years to come.

See Also

Hans Eysenck
Intelligence-Personality Association, Assessment of
Meta-Analysis in Personality Research

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Hogan, Robert

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Kaiser Leadership Solutions

Every now and then a scientific discipline moves forward. You can usually trace the advance to an iconoclast whose bold ideas and relentless commitment to them eventually prevail against the headwinds of orthodoxy. The personality theorist, Robert (Bob) Hogan, is one such iconoclast.

Today personality is everywhere – beyond social psychology and organizational psychology to most subdisciplines, and even in other disciplines like economics, history, and political science. Personality assessment is commonplace in the corporate world – from employee recruitment and selection, to training and development, team building, and leadership succession. This is largely thanks to the clear thinking, hard work, and phenomenal perseverance of Bob Hogan. Before his crusade, the conventional wisdom in psychology was that personality didn't much matter (and probably didn't even exist) because situational forces determined behavior (Mischel, 1968). To understand how a poor kid from rural California revived and redefined the field launched by his intellectual hero, Sigmund Freud, you need to understand his story. For who Hogan is *is* an inextricable part of how and what he thinks.

Beginnings

Hogan was born in 1937, the first child of a working-class family that had moved to southern California during the Great Depression. His parents instilled a strong work ethic and he had his first job at the age of 13. Young Hogan was bright and curious, but found school tedious and boring; he also struggled with authority relations and was frequently in trouble for his disruptive influence in the classroom. Outside school, he was fascinated by the study of animals – particularly the insects and desert reptiles of California – and by girls. By his own initiative he read a great deal, including Darwin, which sharpened his appreciation for the animal behavior he had been observing, and Freud, which intrigued him with the idea that people did things for reasons of which they were dimly aware but that were a function of underlying erotic preoccupations.

Hogan went on to undergraduate studies in the University of California system but didn't major in psychology because those courses involved the study of lab rats and covered neither evolution nor Freud. He pursued physics, engineering, and philosophy instead, but found them to be frustrating because of their lack of practical certainty. However, they did expose him to the importance of data, mathematical modeling, and existentialism.

Hogan had joined the Naval Reserve Officer's Training Corps to pay for his education, so after completing undergraduate studies he spent three years as an officer at sea. He turned around his gunnery unit, which became the highest performing on the ship, and received a letter of commendation from the Secretary of the Navy. This earned resentment from his fellow officers. They were privileged, middle-class young men and took exception to the way Hogan out performed them by treating the sailors under his command as respected equals. He quarreled with his peers often.

After leaving the Navy in 1963, Hogan took a job as a probation officer in San Bernardino, California. This was a life-changing experience. His boss, a student of Carl Rogers, and other colleagues were kind and committed to helping troubled kids. Hogan's job was to evaluate teenagers who had gotten in trouble with the law. He had no empirically-based guidelines and found his classes on the behavior of lab rats of little help. However, what he did find helpful was a book on abnormal psychology. Hogan concluded that there were few neurotics and even fewer psychotics among the delinquent population he evaluated, but all of them seemed to have a personality disorder.

Graduate Studies

Inspired by his work as a probation officer, Hogan pursued a PhD in personality psychology at the University of California, Berkeley. The Berkeley faculty included many esteemed psychologists such as Jack Block, Richard Lazarus, and Ed Ghiselli but it was the local Institute for Personality Assessment and Research (IPAR) where he felt most at home. The IPAR staff included Harrison Gough, Frank Barron, Donald McKinnon, Ravenna Helson, and other imaginative psychologists dedicated to the empirical study of high-level effectiveness.

A few key events in graduate school proved fateful in shaping Hogan's career. First, the response-set controversy proposed that answers to personality-questionnaire items are based on social desirability. This nearly killed substantive personality research, as researchers began to study the process of item responding instead of the consequences of individual differences. Second, Warren Norman gave a presentation at IPAR on his extensions of Tupes and Christal's (1961) empirical work suggesting the structure of personality measurement could be described with five factors (see Big Five). The model ran contrary to prevailing views but Hogan found the data convincing. Third, Hogan was exposed to Harrison Gough and his practical philosophy of personality measurement. Gough considered classical test theory and its goal for assessment as the estimate of "true scores" to be nonsense; instead, Gough built the *California Psychological Inventory* (see California Psychological Inventory (CPI)) on the idea that the goal of assessment is to predict behavior. Finally, Mischel's (1968) famous attack on personality psychology was published, and it ushered in an era of behaviorism and hostility toward personality. Social psychology and

situational explanations became de rigueur, making it nearly impossible to publish research on individual differences. Hogan's career has largely been motivated by proving that Michel was wrong.

Hogan's dissertation concerned the development of morality. It contrasted the Freudian view, which focused on attitudes toward authority, with the role-theoretical view of George Herbert Mead, which focused on meeting expectations for social interaction. It was an exercise in self-discovery: Hogan has serious authority issues, yet a strong sense of morality. His personal sense of fairness was influenced by the indignities and injustices he experienced growing up poor and in his struggles to reach the middle class. His dissertation study used Gough's approach to measurement to work out the links between psychoanalytic and role theoretic views of morality, and much of his subsequent research has focused on the integration of these two complementary systems.

Personality Theorist

Hogan took his first academic professorship at Johns Hopkins in 1967, and although he received awards for his teaching, he struggled to find top-tier outlets that would publish his research. His first submission to the *Journal of Applied Psychology*, a study showing how personality predicted the performance of police officers, was rejected by the editor who commented, "Everyone knows these tests don't work." In classic Hogan form, he declared war against the critics of personality and fought them on two fronts: by continuing his own research and by creating a reputable outlet for the research of others.

In 1977, he convinced the chairman of the APA's Publications and Communications Board that there was a lot of important personality research but few prestigious outlets in which to publish it. The chairman established a new section in the *Journal of Personality and Social Psychology* focused on personality and appointed Hogan as editor. The move outraged social psychologists, but under his leadership the section quickly became influential and *JPSP* became one of the most successful APA journals. It also made it possible to have a career in personality psychology, and articles by Dan McAdams and Dean Keith Simonton soon became classics in the larger field of psychology.

Hogan's own research has been prolific and highly influential. It can be broadly summarized as involving five initiatives.

First, as an engaging instructor at Johns Hopkins, he involved his students in a project to apply the Five Factor Model. They rejiggered Gough's CPI and determined that a Five Factor scoring key produced stronger empirical results. Out of respect to his former mentor, however, Hogan did not publish the results. Instead, he and his students created a new test based on the Five Factor Model, the *Hopkins Personality Inventory* (later renamed the *Hogan Personality Inventory*, or HPI). In addition to being structured around the latest empirical findings, it was also developed using a normal population of working adults, as opposed to clinical samples, making it ideal for workplace applications.

Second, after Hogan left Hopkins to start and chair an industrial-organizational psychology program at the University of Tulsa in 1981, he focused his efforts on combining Freudian theory and role theory and tested them out using HPI data. He presented this work at the University of Nebraska's revered annual Symposium on Motivation, where he

first introduced his socio-analytic theory (Hogan, 1983). The presentation was grand in its intellectual ambition, using evolutionary theory (see Evolutionary Theory of Personality) to synthesize the best insights from psychoanalysis with the best insights from sociology. The argument boiled human motivation down to biologically based needs to get along, get ahead, and find meaning in life; it set an agenda for personality assessment as quantifying individual differences in these capabilities. The theory also defined the assessment process as a "self-presentation" where test-takers try to create a certain impression, rather than a "self-report" of their underlying traits. The distinction between description (traits) and explanation (motivation) of personality phenomena was also clarified. In a single presentation, Hogan seemed to resolve all the major controversies and criticisms of personality assessment. For instance, when personality-performance relationships are organized and meta-analyzed using socio-analytic theory, the correlations are substantial (Hogan & Holland, 2003).

A third initiative was based on his experience in the Navy. In 1985, Hogan began studying the psychological literature on leadership and was disappointed to find that there was no consensus about the qualities of a "good leader" and that the prevailing view was that "it depends": in the right situation, anyone can be a successful leader. Taking a cue from Piaget, Hogan turned the question upside down: if there are no common qualities associated with successful leadership, what about failed leadership? And by systematically studying examples of failed leadership in the military, government, academics, and especially business, he concluded that leaders typically fail for one or more of a finite set of irritating interpersonal behaviors (e.g. abrasiveness, volatility, arrogance, exploitation). This work led to his formulation of leadership, based on evolutionary theory (Evolutionary Theory of Personality), as the social force needed to influence selfish members of a group to set aside their personal agenda, for some time, and work together to outcompete rival groups (Personality and Leadership). Further, he noted that bad leadership is the norm, largely because people are drawn to leadership positions for selfish reasons (Hogan, Curphy, & Hogan, 1994; Hogan & Kaiser, 2005; Van Vugt, Hogan, & Kaiser, 2008).

The fourth initiative is an offshoot of Hogan's study of failed leadership. Closer examination of the irritating interpersonal tendencies led him and his wife, Joyce, to realize that these qualities were distinct from the dimensions of normal personality measured by the HPI. These tendencies resembled the personality disorders he observed among juvenile delinquents; they had a selfish quality and were used to manipulate others for short-term gains, albeit with long-time costs. The Hogans described these attributes collectively as "the Dark Side" of personality, and they designed the *Hogan Development Survey* (HDS) to measure them (Hogan & Hogan, 2001). The scales on the HDS overlap somewhat with the "Bright Side" dimensions of the Five Factor Model but are conceptualized as extending to the extreme ends of these continua, at which reside rigid and inflexible tendencies to manipulate other people (see also Sub-Clinical Traits in the Workplace for more on the dark side of personality). The Dark Side has been one of the more captivating concepts Hogan has introduced and has been remarkably influential in both research and real-world applications in business.

The fifth initiative has been Hogan's refutation of the accusation that faking renders personality testing invalid. The standard view is that personality-test items are transparent and that test-takers can tell which response is socially desirable, so they provide false

reports of their tendencies by choosing the more desirable responses rather than honestly describing themselves (see Response Styles, Issues of). Hogan's counterargument is that social life is "all faking, all the time." That is, people are born self-interested and the process of socialization, from parenting to schooling and beyond, is about teaching them to suppress their selfish urges and instead behave according to socially acceptable conventions. Viewed this way, the observed variation in personality-test scores represents differences in test-takers' social knowledge and skill, which is valid variance for predicting social performance. Support for his argument is apparent in the fact that there is variability in personality-test scores and that those scores correlate with real-world behavior in meaningful ways (see Personality and Intelligence in Employee Selection for relationships between personality and employee performance). And although experimental manipulations can get people to (slightly) change their test scores, a study of over 5,000 job applicants who took a personality test but were denied employment showed no substantive enhancements in their test scores when offered a second chance six months later (Hogan, Barrett, & Hogan, 2007). In other words, faking may exist in theory but it doesn't in practice.

Summary

Not long ago, applied psychology had no personality. Thanks to the curiosity, creativity, and persistence of one of psychology's most iconoclastic personalities, the subject is now a central concept in applied psychology and beyond. Bob Hogan has thought carefully and fought doggedly for 50 years to prove that personality is real and consequential. Of course, skeptics remain. As Hogan is fond of noting, the great physicist, Nihls Bohr, once observed that no amount of data will convince your academic critics; you have to wait for them to die.

See Also

Big Five
California Psychological Inventory (CPI)
Evolutionary Theory of Personality
Personality and Leadership
Response Styles, Issues of
Sub-Clinical Traits in the Workplace

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Holland, John

Jo-Ida C. Hansen

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John Lewis Holland was a theorist, researcher, practitioner, and educator. His graduate training was in psychology but his specialties were interest and career assessment and vocational psychology. Holland was born in 1919 in Omaha, Nebraska. His parents were of English-Irish ancestry. His father immigrated from London to Canada, where he worked as a laborer in the wheat fields. In 1911, Holland's father moved to Omaha and worked dismantling old train cars for the Union Pacific Railroad until he made a substantial career change and became a store window decorator and eventually an ad man for a gift shop, then an ad man in a large furniture store and eventually, formed his own advertising agency. Holland's mother was a teacher before she married his father; her students were primarily immigrant children from Russia, Sweden, and Denmark. Both of Holland's parents had artistic interests; his father was a writer and artist, and his mother played the piano and had a great appreciation for music. Holland had two brothers and a sister, Margaret (known as Jean). His older brother, Bill, was a star chemical engineer; his younger brother, Dick, took over his father's advertising business, which he developed into Omaha's second largest agency. His sister Jean majored in science and became a professor of pathology at the University of North Dakota.

Holland was one of the most influential psychologists of the twentieth century, and his impact on vocational psychology continues into the twenty-first century. He is well known for his Theory of Vocational Personality Types, which has become known simply as Holland's theory, as well as for his interest inventory, the Self-Directed Search. Holland's original theoretical article, published in 1959, introduced a model of interest assessment and career interventions. In 1966, he published *The Psychology of Vocational Choice,* which he called "a little book," that described his theory of vocational personality types in detail and provided substantial research evidence to support many of his constructs. In 1958 he published the Vocational Preference Inventory (VPI) but his Self-Directed Search (SDS), published in 1970, supplanted the VPI. The SDS continues to be a popular measure used to assess interests in research and career counseling settings.

One reason for the popularity of Holland's theory is the parsimony of the model which translates easily into career counseling. His theory proposes that vocational interests can be categorized into six types – Realistic, Investigative, Artistic, Social, Enterprising, and Conventional – or some combination of the six types. The Realistic Type includes interests in working outdoors, with things rather than ideas, and with machines. The Investigative Type includes interests in scientific activities, solving problems, and analysis of data and ideas. The Artistic Type values self-expression and creativity especially in music, art, and writing. The Social Type prefers group and humanistic activities, and solving problems by understanding feelings and interpersonal relations. The Enterprising Type prefers organizational activities that include selling and leading and persuading others. The Conventional type has interests in activities that require attention to detail and accuracy as well as numerical activities. The structural arrangement of the six types (R-I-A-S-E-C), hypothesized by Holland, has been shown repeatedly to resemble a six-sided polygon or hexagon. The types adjacent to one another on the polygon (e.g. R-I and E-C) have more in common than do diametrically opposed types (e.g. R-S, I-E, and A-C).

Holland's six types can be used to describe an individual person's interests as well as to summarize the most salient activities in work environments, jobs, and occupations. Furthermore, Holland predicted that people will choose to enter occupations that are congruent with their interests. Holland also proposed that positive outcomes, such as job satisfaction and performance, and job tenure, occur when a person's interests match the requirements of the environment (i.e. have P-E Fit).

To help vocational counselors use his theory with clients, Holland constructed two interest inventories – the VPI and the SDS. The SDS is a more popular choice than the VPI because the inventory can be self-scored. In other words, the client or the test administrator can easily calculate the scores for the scales that assess interest in the six types. Most other interest inventories must be scored by a scoring service, which increases the price of the inventory. Thus, the SDS is a relatively inexpensive option both for use with clients and for use in research that studies questions related to vocational interests. In 2009, Holland's publisher estimated that the SDS, available in 25 languages, had been taken by 29 million people.

Holland developed several other assessment instruments including the Vocational Identity Scale (1993), the Career Attitudes and Strategies Inventory (1994), and the Position Classification Inventory (1998), but the SDS clearly is his most popular inventory. One of Holland's most frequent collaborators was Gary Gottfredson, and together they developed "Holland Codes" for hundreds of occupations. These codes, published in the *Dictionary of Holland Occupational Codes* (Gottfredson, Holland, & Ogawa, 1982), provide a shorthand for describing the most important interests for an occupation. For example, chemical engineers are coded Investigative, Realistic, Enterprising, and art directors are coded Artistic, Enterprising, Social. The codes also provide counselors and clients with valuable occupational information to use in career decision-making. Holland and his colleagues also developed "Holland Codes" for college majors and leisure activities.

Holland grew up in Omaha attending Washington School and graduating from Central High School. He lived on Pine Street where the family home had enough acreage for fruit trees, gardens, and a playground including a football field and miniature golf course. He did his undergraduate work at the Municipal University of Omaha (now University of

Omaha) majoring in psychology, French, and mathematics and graduated in 1942. His brother Bill described him as Dean William Thompson's "fair-haired boy." Thompson was a clinical psychologist and, incidentally, Warren Buffett's father-in-law.

Upon completing his undergraduate degree Holland enlisted in the Army. Even at a young age, his vision was poor and for most of Holland's professional life his vision was borderline for obtaining his driver's license. In 1942, poor vision was not a reason to fail the military physical but his vision, along with his major in psychology, likely did lead to Holland's military assignment to positions such as classification interviewer, test proctor, psychological assistant, and Wechsler Intelligence Test administrator rather than an assignment with the infantry. Holland's daughter, Jean Holland, believes that his work interviewing hundreds of new Army recruits, led him to conclude that people could most likely be classified into a relatively small number of types.

After completing three and a half years in the Army, Holland entered graduate school to study psychology at the University of Minnesota. He completed his MA in 1947 and his PhD in 1952. Holland credits Herbert Feigl's philosophy of science course with stimulating his interest in theory during graduate school, and later a critique of his theory by Bill Alston, a Michigan philosopher, with helping him to hone a defensible theory. Holland's graduate education also provided a heavy dose of "Dustbowl Empiricism" that was driven by psychologists such as Donald G. Paterson, Edmund G. Williamson, and John D. Darley, who approached psychology with a "show me the evidence" philosophy.

Holland's own interests also shed some light on his career path. His Investigative interests (I Type), of course, were evident in his theoretical writings and research that culminated in over 200 publications. His Enterprising interests (E Type) contributed to his efforts to publicize and market his assessment instruments, especially the SDS and his theory. Holland also was an enthusiastic pianist from an early age. He continued to take lessons and practice throughout his lifetime and gravitated toward classical music. His Artistic interests (A Type) also were evident in his substantial graphic, oil, and water color art collection.

Initially, Holland worked in applied psychology settings. He worked at the Western Reserve University counseling center for three years (1950–1953), then at the Veterans Administration Psychiatric Hospital in Perry Point, Maryland (1953–1956), the National Merit Scholarship Corporation for six years, and the American College Testing Program (ACT) for six years. During his time at Western Reserve, he became convinced of the need for more efficient methods for assessing vocational interests as well as for connecting an individual's vocational characteristics to the requirements of the work environment. During his work with National Merit and ACT he had the resources and the opportunity necessary for research and the freedom to develop the VPI and his typological theory. Holland's tenure with ACT, as vice president for research and development, ended over a disagreement with the president about an administrative decision involving the development of an ACT product. Reflecting on his firing, Holland acknowledged that his most important work, developing his theory and the SDS, most likely would not have occurred if he had remained with ACT. In 1969, Holland accepted an offer from the Johns Hopkins University in Baltimore as a professor. He retired at the (especially now) young age of 60 (1980) but continued as emeritus professor and as an active scholar. He died in 2008 at the age of 89.

Holland's body of work influenced both the science and the practice of vocational psychology. Some of the most productive researchers in contemporary psychology built their careers on investigations of Holland's theoretical constructs, the application of his theory to a better understanding of career choice and decision-making and person-environment fit, the study of vocational interests, and the assessment of interests in career counseling as well as for research. His name recognition in psychology surely is the equal of other greats in the field (e.g. B. F. Skinner and P. E. Meehl). From all reports, he was generous with his professional assistance to early career professionals and developed life-long friendships with collaborators as well as with competing interest inventory authors.

Holland's theory has stimulated decades of scholarship and research in vocational psychology, career development, and interest measurement. And his theory also has had a tremendous impact on interventions in career counseling. Holland's theory brought order and focus to the field of vocational interest assessment which had previously been primarily atheoretical in its orientation. This structure and focus helps career counseling clients to better understand the relations among their interest as well as the way in which their vocational types fit into, and are operationalized by, the world of work.

Holland's theory has been employed around the world. His work is so well known in Australia, for example, that a book titled *Holland in Australia* (Lokan & Taylor, 1986) was published. His SDS has been translated in numerous languages other than English. Holland's types also have been integrated into several other interest inventories (e.g. the Strong Interest Inventory and the Campbell Interest and Skill Survey) as well as the Department of Labor's coding of occupations, the O*NET, and the Department of Defense's ASVAB Career Exploration Program. Articles related to his theory and the SDS have been published in over 178 journals worldwide (Reardon, 2009), and Holland is one of the most frequently cited of any psychologist in the past half century.

Holland received numerous recognitions for his intellectual contributions including honorary doctorates from Doane College (Crete, Nebraska), the University of Nebraska, and the University of Minnesota. He was a Fellow of the American Psychological Association (APA) in the specialties of counseling psychology and educational psychology, and president of the Society of Counseling Psychology. His many awards included the E. K. Strong, Jr. Gold Medal for Contributions to Interest Measurement (1974); Eminent Career Award from the National Vocational Guidance Association (now National Career Development Association; 1980); Distinguished Lifetime Contribution to Counseling Psychology (1990); Walter Storey Career Development Professional Award from the American Society of Training and Development (1990); the American Counseling Association's Extended Research Award (1995); and Distinguished Professional Contributions to Knowledge Award (1995) and Distinguished Scientific Application of Psychology Award (2008) from the APA. Holland also was the first recipient of the Society for Vocational Psychology's Distinguished Achievement Award in 2005.

Holland and his wife, Elsie, had three children. He described his daughter Kay as an "ASE...Big A" (Artistic-Social-Enterprising) book binder, ballet dancer, musician, teacher (Weinrach, 1990). His daughter Jean's code is SIA (Social-Investigative-Artistic) and she has worked as a counselor-statistician. His son, Bob, is a Realistic (R) Type and has worked as a driver for various industries and as a carpenter.

See Also

Career and Vocational Interests Abilities, Assessment of
Personality, Interests, and Careers
Self-efficacy, Career

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Matarazzo, Joseph D.

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Joseph D. Matarazzo was born in Italy to parents who were US citizens. He completed the first 12 years of his education in the public schools of Schenectady, New York. Following his high school graduation in 1943, he served on active duty in the US Navy for six months before being selected for officer training. Because of the wartime need for young officers, this program accelerated four years of college education into 28 months, which Matarazzo completed through the Navy V-12 Program at Columbia University (eight months) and the Naval Reserve Officers' Training Program at Brown University (20 months). Following his June 1946 graduation from Brown University with a Bachelor of Arts degree in naval sciences and a commission as an ensign, Matarazzo served aboard a navy oil tanker in the Far East.

A year after leaving Brown where he had not taken even one psychology undergraduate course, Matarazzo sent an application from the Pacific to Brown and was accepted as a postbaccalaureate graduate student in the psychology department. At Brown, he spent his first year as a graduate student taking the nine courses required for an undergraduate major in psychology. His classroom and social interactions with Brown's small cadre of graduate students during the 1947–1948 school year remain among Matarazzo's most memorable experiences. Although he did not know it at the time, this year of graduate study would greatly influence his subsequent choice of a career in academic psychology. That year also influenced his personal life inasmuch as one year later (in 1949) he married one of the graduate students he had met in Brown's psychology department (Ruth Wood Gadbois).

Brown was one of the few universities in the country that offered a doctoral degree in psychology but did not offer a clinical psychology program. Therefore, in the fall of 1948 Matarazzo transferred to Northwestern University after Brown's psychology department Chair, Walter Hunter, wrote a letter on Matarazzo's behalf to his longtime friend, William A. Hunt. This transfer proved to be fortunate, as Hunt was then a role model for the psychologist as a scientist-practitioner.

At the end of Matarazzo's second year of graduate study at Northwestern, he left for an internship with Robert I. Watson and Ivan N. Mensh at Washington University School of

Medicine in St. Louis, Missouri. Just before he completed his one-year internship, the dean of the medical school asked him to stay on for his fourth year of doctoral study to teach a required course in medical psychology to first-year medical students. The dean got permission from Northwestern for Matarazzo to take the 32 hours of courses for his doctor of philosophy minor at Washington University School of Medicine and to have those credits transferred to Northwestern.

Matarazzo taught at Washington University School of Medicine (1952–1955) and then at the Harvard Medical School (1955–1957). After these appointments, he established the first administratively autonomous department of medical psychology in the United States, at the Oregon Health Sciences University, and he served as the department's chairman from 1957 until he resigned the position in 1996. In 1996 he became a tenured professor of behavioral neurosciences.

Matarazzo's 44 years on the faculty of the Oregon Health Sciences University Medical School provided a fertile environment for him to contribute to furthering the application of psychology in three ways. First, he contributed to the advancement of psychological assessments. In 1972 he wrote the fifth edition of *Wechsler's Measurement and Appraisal of Adult Intelligence*, which served as a required textbook for a generation of graduate students in clinical, counseling, school, and industrial-organizational psychology.

Second, his four-decade tenure as a member of the board of directors of his university hospital's medical staff provided full staff voting membership for the other members of his clinical psychology faculty and, along with his forceful publications on this subject, helped pave the way for psychologists to be admitted to full voting membership at other university and community hospitals. Using his medical school base, Matarazzo demonstrated the ability of psychologists to serve as consultants to their physician colleagues in departments of medicine, pediatrics, obstetrics-gynecology, and neurology, rather than exclusively to associates in departments of psychiatry. He thus served as a role model in helping psychologists throughout the country expand their work with nonpsychiatrist physicians.

Third, during the 1970s Matarazzo further extended the scope and promise of the potential partnership of psychology and medicine as one of the principal founders of the American Psychological Association (APA) Division of Health Psychology, while he concurrently helped to establish behavioral health and behavioral medicine as a viable clinical and scientific bio-behavioral partnerships for both professions. From that base, he also served during the next two decades as a catalyst for the establishment of the European Society of Health Psychology, the Italian Society of Health Psychology, the Japanese Association of Health Psychology, and the Asian Association of Health Psychology.

Matarazzo promoted the development and growth of psychology in other countries of the world in a number of leadership positions at the international level. These included serving as president of the International Council of Psychologists (1976–1977), a member of the executive committee of the board of directors of the International Association of Applied Psychology (1986–2002), United States Delegate from the US National Academy of Sciences to the International Union of Psychological Sciences to the International Union of Psychological Science (1994–1998), and as president of the International Congress of Applied Psychology (1998).

Over the years, Matarazzo has served as president of such organizations as the Academy of Behavioral Medicine Research, the International Council of Psychologists,

the Western Psychological Association, the APA Division of Health Psychology, the American Association of State Psychology Boards, the American Psychological Foundation, and the American Psychological Association (1989–1990). He was also one of the founders of the Council of Graduate Departments of Psychology and served on its charter executive committee.

He has served on National Institutes of Health (NIH), National Institute of Mental Health (NIMH), and National Science Foundation training committees, advisory panels and study sections, and he has served as the charter chairperson of the NIH Behavioral Medicine Study Section. He served for 20 years as the psychology editor for *Stedman's Medical Dictionary*, and has served over the years on the editorial boards of nine APA journals, and served on the editorial boards of 16 other scientific and professional journals. In 1991 he was appointed by the US Secretary of Health and Human Services to a four-year term on the NIMH Mental Health Advisory Council.

Matarazzo's awards include the annual Award for Contributions to Health Psychology from APA's Division of Health Psychology, the annual Distinguished Scientist Award from APA's Division of Clinical Psychology, the annual Distinguished Service to the Profession of Psychology Award from the American Board of Professional Psychology, the annual Research Award (Hofheimer Prize) of the American Psychiatric Association, and the 1991 Award for Distinguished Professional Contribution to Knowledge from the American Psychological Association.

His academic interests included behavioral cardiology, then a nascent area of study that is a now critical focus in the cardiology community. For years he served as a familiar beacon for how clinical psychologists could contribute to schools of medicine, the training of medical students and residents, and patient care.

He developed training programs for psychology students and interns that were novel, clearly ahead of their time, and became a model that slowly gained the attention of psychology graduate programs across the country. His hundreds of publications and presentations underscored how patients in medical settings, and medical and allied health students in training could benefit from the knowledge and skills provided by clinical health psychologists.

During his tenure as president of the American Psychological Association in 1989, Dr. Matarazzo continued to champion the value of psychologists in the health care system. He was also instrumental in the formation of the Association of Psychologists in Academic Health Centers, a now robust organization of 4,000 that represents the interests of psychologists teaching and serving in health science centers in the United States and Canada.

Many psychology graduate students now enter universities choosing a career track to provide services to medical patients with or without mental health challenges, the path he walked alone for many years, and a path now well worn by thousands who have followed him. Innumerable students, patients, and medical practitioners have benefited from his vision and perseverance.

Dr. Matarazzo's contributions have led to thousands of articles, books, presentations, and discussions in the general press and social media regarding psychological factors in health and illness. His important contributions include research and scholarly work, including influential offerings on measurement of intelligence (Lindemann & Matarazzo, 1990), the clinical interview (Matarazzo, Saslow, Matarazzo, & Phillips, 1958), and assessment.

He also authored an exceptional series of articles on behavioral pathogens and behaviors that impair our health (Matarazzo, 1984) and worked to reshape psychology's role and image in medicine, modern medical centers, and schools of medicine (Matarazzo, Lubin, & Nathan, 1978).

His success in building the nation's first psychology department in a medical school and transforming the role of psychology in medicine, and his critical role in the development of other free-standing psychology departments in medical schools, including the Department of Medical and Clinical Psychology at the Uniformed Services University of the Health Sciences, stand among his most enduring contributions to the field and to the betterment of the human condition. He ignited and led a revolution in health psychology and behavioral medicine that has reshaped medical science and practice.

See Also

Health and Personality
Personality and Health
Wechsler Adult Intelligence Scale-IV (WAISC-IV)

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McClelland, David C.

Richard E. Boyatzis

Case Western Reserve University

David C. McClelland, formerly of Harvard University and Boston University
  Areas of research: human motivation, operant measures, competencies, health, leadership

Early Life and Educational Background

Born: May 20, 1917, in Mt. Vernon, New York, USA
  Died: March 27, 1998, in Lexington, Massachusetts, USA
  Married first: Mary Sharpless, 1938, five children: Catherine, Duncan, Nicholas, Sarah, Jabez; second Marian Adams, 1984, two children: Mira and Usha
  Completed PhD in psychology, Yale University, 1941
  Professor at Wesleyan University, Connecticut 1942–1956; American Friends Service Committee and Instructor, Bryn Mawr College, Pennsylvania, 1943–1945
  Programme Director, Ford Foundation, 1952–1953
  Harvard University, 1949–1950, 1956–1987, professor and chairman; Department of Social Relations from 1962–1967, professor emeritus, 1987–1998
  Founded McBer and Company, 1963
  Boston University, professor, 1987–1998

Research Interests

David C. McClelland made major research contributions in motivation, conscious thought, competencies, and healing. He also made major contributions to research in methods by championing conscious thought and thematic coding of the Thematic Apperception Test (TAT) as well as other forms of audio, video, and written documents. As a research psychologist, his work was relatively unique in initiating major programs and fields of endeavor in a wide range of fields from education to clinical practice, management to

economic development, substance abuse treatment to healing sciences. It could be said that there were three major themes in his work directly related to personality and individual differences. The development of the expectancy-value theory of human motives focused on the needs for achievement, affiliation, and power. The second theme was the development of tests and operant methods, such as the TAT, Behavioral Event Interview, and the Test of Thematic Analysis, that have been used in research and applications. The third theme was the development of job-competency studies and methods as a way to link human ability to performance.

A Theory of Human Motives

According to David McClelland, human motivation is "a recurrent concern for a goal state or condition as measured in fantasy which drives, directs and selects the behavior of the individual." Working with Henry Murray in the 1940s, he focused on three particular motives: the Need for Achievement (N Ach); the Need for Affiliation (N Aff); and the Need for Power (N Pow). His work focused from the late 1940s through the 1960s was focused on N Ach. In the late 1960s and through to the 1990s, N Pow emerged as the focal point of his research.

The Need for Achievement is an unconscious drive to do better toward a standard of excellence. People with strong Need for Achievement measure themselves against specific goals. They prefer moderate risks, prefer individualistic activities, recreation involving getting a score, like bowling, and prefer occupations with individual performance data, like sales.

The Need for Power is an unconscious drive to have impact on others. People with strong N Pow often assert themselves by taking leadership positions, gambling, drinking alcoholic beverages, and committing aggressive acts. They often have high blood pressure, and prefer interpersonally competitive sports, such as football. They like to collect possessions that connote prestige to others and prefer occupations in which they can help or have impact on others, like teachers or leaders.

The Need for Affiliation is an unconscious drive to be a part of warm, close relationships, like friendships. People with strong N Aff choose to spend time with close friends or significant others, like to write letters or telephone friends or family, prefer to work in groups and are sensitive to others' reactions. They prefer collaborative activities and occupations in which they work closely with others, such as elementary school teachers and counselors.

Beyond the separate motives, McClelland emphasized the pattern of one's relative motive strength. His claimed that everyone has some level of the motives, but the relative dominance varied. The pattern of a person's motive strength is indicative of occupational performance. For example, high N Ach, low N Aff, and moderate N Pow is characteristic of successful entrepreneurs throughout the world. High N Pow, moderate to low N Aff, moderate N Ach, and high Activity Inhibition (i.e. a measure of self-control) is characteristic of effective leaders, middle-level and executive managers.

In addition to studying motives of individuals, David McClelland initiated a series of studies of motivational trends of societies. He established an empirical link between motivational

themes in cultural modes of expression (e.g. hymns, myths, and children's books) and national events (e.g. the rise and fall of an economy, social movements, and wars).

McClelland's definitions, data, and applications were cited as the most useful approach to motivation in a study by the former accounting firm Touche Ross & Company in 1981.

In Search of Operant Tests and Measures

David McClelland had been a proponent of operant methods (i.e. tests where a person must generate thoughts or actions) from his early days of research in the US Navy on submariners in the 1940s. He argued that operant methods had greater validity and sensitivity than respondent measures (i.e. tests calling for a true/false, rating or ranking response) but were often overlooked by research psychologists because they suffered from less traditional measures of reliability.

In the TAT, a person creates and tells a story about what is happening after looking at a picture for about a minute. As a classic projective test, it moved from the clinician's realm into research with Henry Murray's work in the 1920s. The pictures were selected to be somewhat ambiguous and allow the person to project. Later, in the 1970s, McClelland advocated for a direct behavioral sampling of a person's actions, as well as thoughts and feelings through the Behavioral Event interview where a person is asked to, "tell about a time, recently, when you felt effective in your job." This was a modified critical incident interview as described by Flanagan in 1954. But McClelland's insight was to use it to assess a person's behavioral patterns, not just a job or task or situation.

Specifically, McClelland developed compelling evidence to show that operant methods, as compared to respondent methods, consistently show: (1) more criterion validity; (2) less test-retest reliability; (3) greater sensitivity (i.e. discriminate mood changes, style differences, and other somewhat subtle, dynamic aspects of human thought and behavior); (4) more uniqueness and are less likely to suffer from multicollinearity; (5) greater cross-cultural validity because it did not require a person to respond to prepared items; and (6) increased utility in applications to human or organizational development.

The key to rigorous research and ethical use of operant methods is the process of reliably coding the raw information, whether from audio, videotapes, or historical documents. McClelland extended thematic analysis from a highly unreliable, clinical art form to a legitimate research method. To achieve validity, the coding of the raw information requires consistency of judgment, or inter-rater reliability. It is difficult, if not impossible, to achieve reliability without a clear, explicit codebook. The use of codebooks and reliable coding opened the doors to many new measures. These measures, in turn, allowed creative inquiry into a wide range of people's behavior and outcomes.

Job Competencies and Assessing Behavior

McClelland and colleagues in 1958 conceptualized a broad array of skills as a reflection of a person's capability. Reviving his earlier personality theory from 1951, McClelland and his

colleagues at McBer and Company expanded the search for competencies in the early 1970s (i.e. skills, self-image, traits, and motives) with operant methods in many occupations. In this approach, the definition of a job competency differs from many behaviorist approaches to the identification of skills in that the job-competency definition requires that the person's intent be understood, not merely observation of the person's actions. As a result of this inductive design and using operant methods, there was an emphasis on characteristics of the "person," rather than the tasks involved in a job.

Using operant methods to explore the differences in thoughts, feelings, and behavior of superior performers as compared to average or poor performers, competency models were developed and validated against performance in a job. Studies were completed on bank tellers, social workers, police, priests, generals and admirals, executives, sales representatives, scientists, programmers, project managers, and so forth.

The competency assessment methods developed a picture of how the superior performer thinks, feels, and acts in his work setting. This contextual and concrete picture provided case studies and models for how to help anyone in a job, or aspiring to one, develop their capability. As professionals in organizations were trained in the techniques of job-competency assessment, they developed competency-based training programs, career path systems, developmental assessment programs, coaching and guidance programs, recruiting, selection, and promotion systems. Because of its face validity and growing use by practitioners, academic researchers were alarmed. It took another 30 years before scholarly research was appearing regularly in peer reviewed journals.

In his last published work, David McClelland extended understanding of the impact of competencies on performance by postulating a "tipping point." In addition to knowing which competencies are needed to be effective in a job, he examined a way to determine how much of each competency was sufficient to attain outstanding performance.

Helping People Change

One of David McClelland's somewhat unique perspectives was a refined sensitivity to relevance of one's research. He wanted to develop insight that might help people and our social systems be more humane as well as effective and innovative. It began with McClelland's concept of changing motives – if you know how people with a certain motive think and act, a person changes their motives by changing the ways they think and act. After years of experiments in countries throughout the world, several observations can be made: people can change the shape of their motive profile; people will only change if they want to change; change cannot occur without a change in the person's environmental supports; and any of these attempts at motivational change increased a person's sense of efficacy.

The earliest efforts by McClelland were to stimulate business and economic development by training small business owners in achievement thinking and behavior. It worked in India and other countries and then with minority owned and operated small businesses in the United States. The method was extended to the power motive in efforts to help alcoholics and then executives and middle-level managers in industry, even within the context of community development.

Concluding Thoughts

David C. McClelland had an impact on many fields and scholarly traditions. Through his own work and over the decades and that of his former doctoral students, and now their doctoral students, he has directly and indirectly trained legions of scholars, consultants, and leaders – stimulating their curiosity, guiding and often provoking them to contribute to various occupational fields and professions. He was a founder or influential director of over 14 for-profit and not-for-profit research and consulting companies, the most notable of which is McBer and Company, now The Hay Group/Korn Ferry. Most of all David was, to many of us, a close personal friend, as well as a colleague.

See Also

Culture and Personality
Motivation (Achievement, Affiliation, Power)
Needs, McClelland Theory of
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Thematic Apperception Test

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Beck, Aaron T.

Lena C. Quilty

University of Toronto

Dr. Aaron T. Beck has profoundly shaped clinical research and practice, providing the theoretical framework and standardized tools and protocols crucial to current evidence-based psychological assessment and treatment. Dr. Beck was a seminal figure in the development of cognitive theories of psychopathology and is widely regarded as the father of cognitive therapy. He notably authored a series of assessment instruments that remain some of the most widely used measures of affective symptomatology in both research and practice today. Dr. Beck founded and remains the President Emeritus of the Beck Institute for Cognitive Therapy and Research. He is further professor emeritus at the University of Pennsylvania, where he founded the Psychopathology Research Unit. Dr. Beck is the Honorary President of the Academy of Cognitive Therapy, and has received numerous awards, honors, and honorary degrees in recognition of his contributions to the field. He has published over 600 scholarly articles and 25 books; he was designated one of the five most influential psychologists of all time by *The American Psychologist*, and continues to be actively involved in theoretical and applied research.

Dr. Beck was born in 1921 in Providence, Rhode Island. He received his undergraduate degree magna cum laude from Brown University in 1942, and his medical degree from Yale University in 1946. He completed residencies in pathology and neurology, and subsequently acted as a fellow for two years, accruing experience in psychiatry and psychotherapy. Dr. Beck joined the University of Pennsylvania Department of Psychiatry in 1954, where his early research failed to demonstrate support for the psychoanalytic model of depression. Rather, Dr. Beck observed that depression was associated with reflexive thoughts such as self-criticism and pessimism. He captured depressive symptoms and associated cognitions in the *Beck Depression Inventory* first published in 1961 (BDI; Beck, Ward, Mendelson, Mock, & Erbaugh, 1961) and then revised in 1996 (BDI-II; Beck, Steer, & Brown, 1996). The BDI-II is among the most widely used patient-report measures of depressive severity in research and practice. The Beck Family of Assessments now further comprises the *Beck Hopelessness Scale* (Beck & Steer, 1988), *Beck Scale for Suicidal Ideation* (Beck & Steer, 1991), and *Beck Anxiety Inventory* (Beck & Steer, 1990) – psychometrically

robust and clinically useful multiple-choice symptom scales assessing the moods, cognitions, and other clinical features relevant to these domains of illness.

Dr. Beck characterized the "negative cognitive triad" (i.e. the negative beliefs about the self, the world, and the future) and the "cognitive distortions" (i.e. logical errors, such as catastrophizing, overgeneralizing) evident in depression. He proposed that depressive disorder is in essence a thinking disorder, and that changes in maladaptive thinking styles are both necessary and sufficient to achieve reductions in depressed mood. In a series of landmark clinical trials, he demonstrated that the identification, analysis, and reformulation of depressogenic thought patterns resulted in therapeutic benefit. Through this work, Dr. Beck derived a protocolized approach to treatment called cognitive behavioral therapy (CBT) wherein patients identify, analyze, and restructure the maladaptive thinking styles contributing to the maintenance of their distress. This treatment approach has been described as "collaborative empiricism" to reflect the partnership between the therapist and patient in the evaluation of thinking patterns and resolution of symptoms. CBT is typically characterized as goal-oriented, present-focused, time-limited, and structured. Treatment includes concrete goals, psychoeducation, and activities and skills-building in identifying thoughts associated with current negative moods, evaluating evidence and utility of those thoughts, and developing alternate thoughts not similarly associated with distress and problematic behavioral patterns. Thoughts include interpretations of specific situations or *automatic thoughts* (e.g. "Everyone thought my presentation was terrible"), as well as the polarized *dysfunctional attitudes* (e.g. "If I do not do something perfectly, I have failed completely") and *core beliefs* (e.g. "I am incompetent") that underlie them. Exercises to facilitate cognitive restructuring at each of these levels of thought span imaginal and behavioral exercises, thought records and utility analyses, and are conducted with a form of questioning described as "Socratic dialogue" to facilitate patient self-exploration.

Dr. Beck co-authored several early volumes outlining the theoretical foundation and procedures of CBT in detail, which gained widespread attention and acceptance during the "cognitive revolution" in the 1970s. He published *Cognitive Therapy of Depression* with Rush, Shaw, and Emery in 1979; this volume forms the basis for the most widely used CBT protocols of depression today.

Cognitive models and CBT treatment protocols have been successfully extended to the treatment of anxiety disorders (Beck, Emery, & Greenberg, 2005), substance use disorders (Beck, Wright, Newman, & Liese, 1993), personality disorders (Beck, Freeman, & Davis, 2003), psychotic disorders (Rector & Beck, 2002), and more. Dr. Beck thus has had a critical role in the conceptualization and treatment of a wide range of psychological difficulties. His innovation is matched only by his leadership, evident in his role in professional organizations such as the Academy for Cognitive Therapy and professional meetings such as the World Congress of Cognitive Therapy. Indeed, Dr. Beck has balanced his empirical attention to clinical theory, assessment, and treatment with ongoing promotion of and advocacy for training, mentorship, networking, and collaboration throughout his career.

Although empirical work for the cognitive models and treatment abounds for a wide range of psychiatric disorders, the application of cognitive theory to depression provides a useful illustration of evolving research in this area. After his foundational research, Dr. Beck expanded his cognitive theory of depression to incorporate continued, emerging research, including that relevant to the information processing biases and neurobiological

underpinnings or biomarkers of depression. More specifically, Drs. Clark and Beck (2010) proposed that environmental stressors interact with genetic and personality vulnerabilities, resulting in the activation of negative cognitive "schemas." The activation of maladaptive schemas results in automatic and biased information processing such as biases in attention, memory, and executive function. These biased cognitive processes are in turn linked to specific neurological substrates such as reactivity in the amygdala and hippocampus. Cognitive therapy corrects biased cognitive processing by either reducing automatic, biased processing and/or by strengthening more effortful or reflective processing, which is linked to neurological substrates such as the anterior cingulate, medial and lateral prefrontal, and orbitofrontal cortex. In short, Clark and Beck (2010) propose that the therapeutic benefit of cognitive therapy is mediated by cognitive changes with specified neurobiological substrates.

CBT is commonly regarded as the best-established psychological treatment for depression. It arguably boasts the largest evidence base, accounting for the majority of studies included in meta-analyses of psychotherapy for depression. Evidence robustly supports the efficacy of CBT in the treatment of depression, equivalent to that of other psychotherapies as well as pharmacotherapy (see Beck & Dozois, 2011). Moreover, CBT is associated with decreased relapse rates, suggesting that it targets ingredients crucial for sustained health.

Seminal reviews have synthesized the evidence for the cognitive mediational model in depression, namely that change in cognition is the causal mechanism of action within this treatment modality (e.g. Garratt, Ingram, Rand, & Sawalani, 2007). These reviews clearly support the presence of negative thoughts in those with depression, the improvement in negative thoughts over treatment with CBT, and the association between improvement in negative thoughts and in depression over treatment with CBT. Further, marked improvements or "sudden gains" during the course of CBT have been preceded by changes in negative cognition, further suggesting that these cognitive changes were responsible for that symptom reduction.

Yet, negative thoughts are not specific to depression, and appear to change in response to other psychotherapies and to pharmacotherapy for depression as well. Further, research suggests that change in cognition does not fully account for change in symptoms over treatment, and further, that symptom change can occur in the absence of cognitive change. Sudden gains have also been demonstrated outside of the treatment and even during inactive control treatments. These results suggest that maladaptive thinking patterns are a consequence or associated feature of depression, which resolves with the illness, and may not be causally linked to treatment. In a seminal review, Whisman (1993) submitted that the cognitive mediational model entails that cognitive change is associated with depression change, and that cognitive change is specific to CBT. Later, Garratt and colleagues (2007) suggested instead that as cognitive change is likely directly or indirectly targeted during most psychosocial treatments, the optimal test of cognitive specificity is a contrast between CBT and pharmacotherapy – wherein cognitive change may occur within the latter, but is not of causal significance. Although some research has suggested that changes in cognitive structure are indeed found in CBT but not pharmacotherapy (Dozois, Bieling, Patelis-Siotis, Hoar, Chudzik, McCabe, & Westra, 2009), other research has been unable to demonstrate this specificity (Quilty, Dozois, Lobo, Ravindran, & Bagby, 2014).

Thus, although reviews have documented considerable evidence consistent with cognitive mediation of outcomes, few investigations have been conducted in accordance with these recommendations and conducted formal investigation of cognitive mediation or specificity. Studies frequently include limited assessment of cognition, comparator conditions, sample sizes and follow up periods; together, these design features preclude the ability to support a causal association between change in cognition and change in depression severity over treatment. Thus, although CBT is among the best-established treatments for depression and yields lasting therapeutic benefits, the underlying mechanisms of its impact upon symptoms have yet to be confirmed (see Lemmens, Müller, Arntz, & Huibers, 2016 for a more recent review).

See Also

Depression
Hopelessness

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Seligman, Martin E. P.

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Learned Helplessness

Seligman was born in Albany, New York, in 1942 and earned his bachelor's degree in philosophy at Princeton University in 1964, graduating Summa Cum Laude. Seligman received his PhD in psychology at the University of Pennsylvania in 1967 and it was during this period, as an extension of his research on depression, that he began to conceptualize and develop his theory of "learned helplessness."

While conducting experimental research on classical conditioning for his PhD, Seligman inadvertently discovered that dogs that had received unavoidable electric shocks failed to take action in subsequent situations – even those situations in which escape or avoidance was in fact possible. Eventually, Seligman coined the term "learned helplessness" to describe the mental state that individuals experience when they have endured repeated painful or aversive stimuli that they are unable to avoid. Since his discovery, learned helplessness has become a basic principle of behavioral theory that explains why individuals may accept and remain passive in negative situations despite their clear ability to change the circumstance. In his book *Helplessness* (1975), Seligman argues that these negative expectations contribute to low self-esteem and chronic failure. His research on learned helplessness was supported by the National Institute of Mental Health, National Science Foundation, and the MacArthur Foundation, and the theory has been applied to many conditions and behaviors including clinical depression, aging, domestic violence, academic failure, poor health, drug abuse, and alcoholism. More recently, Seligman has reformulated his theory of learned helplessness to include attributional style.

Learned Optimism

In his public talks, Seligman frequently shares with audiences a story that illustrates his shift away from understanding learned helplessness to examining the principles of learned

optimism. Seligman loves to garden. As he explains, one day he is in his garden with one of his daughters, Nicki, who is about to turn six. Nicki is having fun, spraying dirt and throwing weeds everywhere. Seligman describes yelling at his daughter to stop. Nicki proceeds to walk over to her father with a stern look on her face. "Daddy," she tells her father, "from the time I was three until I was five, I whined a lot. But I decided the day I turned five, to stop whining. And I haven't whined once since I turned five." At this moment, according to Seligman, his almost six-year-old daughter looks him right in the eye and says: "And daddy, if I can stop whining, you can stop being such a grouch" (Seligman, 2002).

Seligman's book *Learned Optimism*, published in 1990, examines the differences between pessimists and optimists in terms of their different explanatory styles. Seligman argues that anyone can become an optimist by using various "self-talk" methods and techniques. The one essential step, Seligman asserts, is developing the ability to *dispute* the reasons or beliefs individuals typically give when facing an adverse situation or setback. In 1990, Seligman established The Penn Resiliency Program, in collaboration with his co-investigators Jane Gillham and Karen Reivich, to conduct a series of longitudinal, controlled studies to determine the effectiveness of these methods and techniques. The studies consisted of a school-based cognitive-behavioral intervention to prevent depression and anxiety among middle school students. These studies, funded by the National Institute of Mental Health and the US Department of Education, indicate that the techniques introduced in *Learned Optimism* can prevent and reduce symptoms of depression and anxiety, although some inconsistent findings were reported. Significantly, the studies reveal that the positive effects appear to be long-lasting. Seligman and his colleagues describe their theoretical approach and interventions in the book *The Optimistic Child* (1995). During this period of time Dr. Seligman also directed the Clinical Training Program within the Department of Psychology at Penn.

Positive Psychology

Seligman is widely considered one of the pioneers of positive psychology. For example, in 1998, as president of the American Psychological Association, he selected positive psychology as his presidential theme. However, it should be noted that from its inception Seligman closely collaborated with a number of distinguished psychologists to develop and explore the concepts, theories, and empirical evidence underpinning the study of positive psychology. Mihaly Czikszentmihalyi, Donald Clifton, George Valliant, Christopher Peterson, Daniel Kahneman, and Ed Diener are among the many psychologists who helped launch what is known today as the field of positive psychology.

In general, positive psychology is the study of the conditions and processes that contribute to the flourishing or optimal functioning of people, groups, and institutions. More recently, positive psychology has focused on the scientific study of human strengths and virtues. The 2004 handbook *Character Strengths and Virtues*, co-written by Seligman and Christopher Peterson, established the theoretical and empirical roadmap by which psychologists could connect their own lines of research to the emerging field of positive psychology. The handbook, what Seligman and Peterson often referred to as the "un-DSM,"

identified six classes of virtues and 24 character strengths. The six virtues are wisdom, courage, love and humanity, justice, temperance, and transcendence. The 24 character strengths include curiosity, creativity, persistence, integrity, kindness, fairness, leadership, forgiveness, humility, gratitude, and hope, among others. One chapter of the handbook is devoted to each of the 24 character strengths. The research for the handbook was supported by the Values in Action Institute, a nonprofit initiative of the Manuel D. and Rhoda Mayerson Foundation, directed by Dr. Neal Mayerson.

From the beginning, Seligman and his colleagues made every effort to involve young and mid-career scientists in developing the field of positive psychology. Seligman introduced the American Psychological Association (APA) to the John Templeton Foundation, and in 2000 the Foundation awarded the APA a substantial grant to establish the Templeton Positive Psychology Awards. During the next three years, these awards were given annually to young or mid-career researchers. A decade later, many of these researchers remain at the forefront of positive psychology, taking on positions of leadership within the discipline as well as continuing to conduct and disseminate research that informs and expands humanity's understanding of what Seligman calls "the best things in life." Recipients of the Templeton Awards include Barbara Frederickson, Sonja Lyubomirsky, Lisa Aspinwall, Laura King, David Lubinski, Kennon Sheldon, Laura Kubzansky, Suzanne Segerstrom, Jonathan Haidt, Dacher Keltner, and Michael McCullough.

The first book Seligman wrote about positive psychology for the general audience was *Authentic Happiness* (2002). The first sections examine the three pillars underpinning the study of positive psychology: positive emotions, positive traits (strengths and virtues), and positive institutions. In the final section, Seligman offer a response to the Aristotelian question "What is the good life?" He identifies three pathways: the pleasant life, the good life, and the meaningful life. The pleasant life is focused heavily on the hedonic, the pursuit of physical pleasures that excite our senses and positive emotions. The good life consists of finding balance between the different areas of life (work, play, love) and leveraging our signature strengths to experience as much flow as we can. The meaningful life occurs when we experience a deep sense of fulfillment because our life is connected to noble purposes beyond our own cares and concerns.

Seligman established the Positive Psychology Center at the University of Pennsylvania in 2001. The Center is home to many scholarly, research, and field-building initiatives. In 2005, Seligman established, in collaboration with his colleague James Pawelski, a master's program in Applied Positive Psychology, and since the MAPP's inception hundreds of professionals in different domains and across the globe (including business and nonprofit leaders) have examined the principles of positive psychology within the context of their own profession and areas of expertise.

Dr. Angela Duckworth, one of Seligman's former graduate students, established her research lab at the Center to study the relationship between grit, self-control, and achievement. Seligman and colleagues are also examining which "health assets" produce stronger health, an initiative supported by the Robert Wood Johnson Foundation. The Center is home as well to the World Well-Being Project, a collaborative effort between computer scientists, psychologists, and statisticians to shed new light on the psychosocial processes that affect health and happiness.

In 2011, Seligman wrote *Flourish: A Visionary New Understanding of Happiness and Well-being*. In the first chapter he offers a strong critique of happiness as the current gold standard of positive psychology, arguing that happiness is too dependent on mood. In its place, Seligman elevates well-being as the new gold standard. Asserting that well-being has five elements, he developed the mnemonic PERMA to explain each component. The first element of well-being is positive emotion (fully explained in his earlier book *Authentic Happiness*). The second is positive engagement, how often we are absorbed in an activity that allows us to enter into the state of flow. Positive relationships is the third element, the extent to which we have significant friends, family, and neighbors. Chris Peterson, one of the founders of positive psychology, underscored the importance of this element whenever he was asked to explain what positive psychology was about in a just a few words. He always replied "Other people." The fourth element is positive meaning, the pursuit of noble purposes that extend beyond our own needs and concerns. The final element of well-being is positive accomplishment, the notion that we are creatures who actively pursue success, achievement, and mastery.

Seligman highlights his work with the US Army in Chapter 7 of *Flourish*. The Positive Psychology Center received funding from the Army to help implement the Army's Comprehensive Soldier and Family Fitness program, an initiative aimed at increasing resilience and reducing post-traumatic stress. The cornerstone component of the program is a train-the-trainer module whereby sergeants in the Army come to Penn for eight days to receive Master Resilience Training. Months later these sergeants then roll out the same program to their soldiers. Seligman participates in these master trainings pro-bono. When the Army conducted an evaluation of the effectiveness of Master Resilience Training in 2013, the results revealed that exposure to resilience training increased various aspects of soldier resilience and psychological health. The evaluation also provided evidence that "soldiers exposed to the training were diagnosed with substance abuse problems at a significantly lower rate than soldiers who were not exposed to the training" (Harms et al., 2013).

Prospective Psychology

In 2012, Seligman and the Positive Psychology Center received two major grants from the Templeton Foundation to further the science of prospection, which is the mental representation and evaluation of possible futures. In 2013, the Center awarded 18 research projects to investigators who seek to measure the mechanisms and applications of prospection, including mapping the neurocognitive mechanisms of prospective thought, the role of dopamine in prospection, animals and prospection, prospection in childhood, and the relationship between prospection and altruism.

Conclusion

Martin E. P. Seligman lives with his wife Mandy and, as he frequently mentions in his talks and books, they have home-schooled five children. He is an avid bridge player who has won over 50 regional championships. Seligman has received two Distinguished Scientific

Contribution awards from the APA and two major awards from the American Psychological Society for his contributions to basic science and the application of psychological knowledge. *A Review of General Psychology* survey, published in 2002, ranked Seligman as the thirty-first most cited psychologist of the twentieth century. Undoubtedly, his ranking for the first decade of the twenty-first century would be considerably higher. He publicly acknowledges that his research interests have long been inspired by Aaron Beck, the renowned psychiatrist at the University of Pennsylvania and the father of cognitive therapy.

The Seligmans live in a home once owned by Eugene Ormandy, a conductor and violinist who became internationally famous as the music director and conductor of the Philadelphia Orchestra. In many ways, Martin Seligman reflects the best qualities and strengths of an orchestra conductor. While early in his career he sought to become a world-class experimental psychologist, his contributions for the past 30+ years have extended beyond basic science. He has embraced his own signature strengths to create networks of psychologists (and funders) who seek to go beyond the profession's historic mission to relieve misery and uproot disabling conditions. In his book *Flourish*, Seligman offers his colleagues a prospective "moon shot" that continues to fuel his own passion and imagination: "I believe it is within our capacity that by the year 2051 fifty-one percent of the human population will be flourishing. That is my charge."

See Also

Clinical Applications of Behavioral Theory of Personality
Coping
Depression
Grit
Hope
Hopelessness
Learned Helplessness
Optimism/Positivism vs Pessimism/Negativism
Personality and Positive Psychology
Resiliency and Hardiness

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Spielberger, Charles

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Charles Donald Spielberger (1927–2013) – Driven Visionary, Landmark Scholar, Global Diplomat

Charles Spielberger – "Charlie" to those who knew him – was of Hungarian descent. His grandparents, Jack and Julia, emigrated from Hungary to Arkansas in the nineteenth century. Charles' father (A.R.) and his wife (Ellie) moved with Charles and his sister, Joyce from Arkansas to Atlanta, Georgia, when they were young. At first, Charles envisioned joining the family's soft drink business and studied chemistry at the Georgia Institute of Technology (Georgia Tech). After his freshman year in 1945, he changed course and enlisted in the Navy. Completing active duty as a radio and electronics technician (1945–1946), he went on to loyally serve with the Naval Reserves, finally retiring nearly 30 years later – in 1979 – at the rank of Commander. Over many years he provided consultation to areas including the Veterans Administration and the Department of Defense Advanced Research Projects (DARP).

Shortly after his active military service, Spielberger turned toward psychology and never looking away, went on to become one of the most prolific psychologists of the twenty-first century. He chose to undergo his undergraduate and graduate psychological training at the highly revered University of Iowa psychology program. He succinctly completed the following degrees: BA (1951), MA (1953), and PhD (1954). As a graduate student he was mentored by Grant Dahlstrom, PhD, greatly influenced by Hullian and Learning Theory, and inspired by the exceptional teaching of Kenneth Spence, PhD. Spielberger's internship at Worchester State Hospital in Massachusetts, while working alongside psychiatrists associated with the Boston Psychoanalytic Institute, would leave an indelible mark upon him. Charlie's world renowned self-report measures would go on to appreciate the psychodynamically discussed tensions and relationships among powerful upsurges of feeling states and relatively stable personality traits. Charlie's ability to measure the dynamic interplay between "state-like" emotional episodes and patterned frequencies (i.e. "trait-like" aspects)

of the experience, expression, and control of emotions, would be a key reason he went on to become one of the world's foremost experts on the assessment of emotion and personality, and their diverse and powerful effects on physiological health.

Spielberger began his academic career at Duke University with a joint appointment in Psychology and Psychiatry. As a driven researcher, he secured funding from the National Institute of Mental Health (NIMH) to support his experimental research on verbal conditioning. A very long lineage of grant awards would follow from international and governmental organizations. His early career funding to study preventive interventions to alleviate the adverse effects of anxiety on academic performance would light an intellectual fire leading to his exhaustively illuminating the effects of anxiety on test performance leading to major contributions such as the development of the Test Anxiety Inventory (TAI). Developing theory and measures of anxiety – in all of its forms – would remain a lifelong passion carrying Charlie around the world.

Spielberger never was happy to simply publish papers, regarding anxiety or any phenomena that attracted his obsessive brilliance and work ethic; he always sought to connect with the most advanced thinkers in any country to ensure he was on the cutting edge. For example, he facilitated worldwide collaboration on the study of anxiety, as he and Irwin Sarason, PhD, collaborated to obtain a NATO grant with Hans Eysenck to organize a conference on "stress and anxiety in modern life" in Germany. Over the next 45 years, Spielberger would end up being the chairman – or a major facilitator – for many national and international conferences addressing areas including anxiety, anger, personality, stress, and health psychology. Not surprisingly, Spielberger's first book, *Anxiety and Behavior*, was based on a national conference he convened.

After his time at Duke, he transitioned to Vanderbilt University as professor of psychology in 1962. With a seemingly endless amount of energy, during an academic hiatus from Vanderbilt, he conducted site visits and evaluated psychology training programs at more than 100 academic institutions. His acumen as an evaluator of programs prepared him well to become professor and director of Clinical Training at Florida State University, where he completed his work on the development and validation of the State Trait Anxiety Inventory (STAI). The STAI has been adapted into 72 languages and dialects, and has been cited in more than 15,000 academic studies. To many, the STAI is the premier self-report measurement tool for assessing anxiety. The STAI has become a "gold standard" international assesment tool.

Spielberger's mission to become an international diplomat for psychology was evident in his spending six months in London at Florida State University's Study Center. It is not an overstatement to say that Spielberger went on to becomeone of the most widely traveled – and well recognized – among his peer group. One of his self-stated missions was to "give science away," and he would go on do this by moving psychology into every corner of the globe.

While a consummate traveler, Dr. Spielberger never moved away from his "academic home" once he settled in at the University of South Florida in 1972. As a professor and director of Clinical Training, he facilitated University of South Florida's clinical psychology program obtaining American Psychological Association (APA) accreditation. Dr. Spielberger was also the first recipient of USF's Distinguished Scholar Award in 1973. Recognized as a researcher of the highest caliber, after only 13 years at USF, Spielberger was appointed a Distinguished Research professor of Psychology in 1985. Spielberger founded the USF Center for Research in Behavioral Medicine and Health Psychology in 1977, and served as its director for the next 25 years.

Measurement Genius and Voluminous Scholar

Dr. Spielberger was truly a revolutionary "thought leader" who recognized the incisiveness of his state trait distinction, as he went on to develop additional state trait measures for anger (State Trait Anger Expression Inventory (STAXI)) as well as for personality through the State Trait Personality Inventory (STPI). Charlie produced 16 self-report personality assessment instruments, and his measures are considered to have a unique scientific elegance. Not surprisingly, a Google search using his name produces over 98,000 results.

Not only did Dr. Spielberger revolutionize the field of academic and applied psychology with the state trait distinction, but he also developed innovative factor analytic psychometric methods which contributed to his ability to produce scales with incredible conceptual rigor. For this reason, Spielberger's measures were cherished by academics and clinicians alike, as they were comprehensive yet concise, while capturing the full spectrum of intensity of emotional states. To do this, Charlie was zealously focused on applying the concept of "item intensity specificity" to the self-report item selection process; the idea that particular self report items addressed a particular level of intensity of an emotion. This psychometric concept was first recognized by one of Psychology's early quantitative and measurement gurus, psychologist Dr. Anne Anastasi.

Spielberger's State Trait Anger Expression Inventory (2nd ed.), is arguably one of the most widely used multidimensional self-report measures of anger in the world. In fact, Charlie can be credited with – ahead of his time – recognizing the critical role that anger plays in human functioning well before the world caught up to the vital role anger has gone on to play in now heavily researched phenomena such as mass shootings and workplace violence. Never forgetting his psychodynamic internship or his chemistry training, Spielberger fused these two experiences together as he broke down dynamic emotional processes into their basest components by using factor analysis to uncover empirically revealed processes involved in the experience, expression, and control of anger. Spielberger continued honing the STAXI until its later version (STAXI-2) contained scales for assessing more nuanced anger control mechanisms articulated only theoretically by psychodynamic thinkers before this measure cross culturally validated these fine-grained distinctions.

Known as the first to arrive at the office and last to leave at his Tampa Florida office, graduate students marvelled at his stamina and dedication. Spielberger's 49-page Curriculum Vitae includes six journal associate editorships, five book series editorships, and more than 464 books, chapters, and major articles, as well as 17 grants for conferences and research.

Visionary Who Transcended Boundaries but Was Rooted in Clarity

While many psychologists find comfort in a certain neighborhood of psychology, Charlie was a restless and transcendent spirit. This discomfort with sitting still in any one area, coupled with his incredibly accessible communication style (no doubt faciliated by his practical midwestern academic upbringing at Iowa) allowed him to not only transcend traditional boundaries outlining subfields of psychology, but also resulted in his becoming a Diplomat of Psychology for the public-at-large around the world. Ultimately this resulted

in, when he traveled around the world, his 6′ 2″ physical stature being warmly welcomed as an icon revered for brilliance and statesmanship. Far before the end of his career, he became known as one of our field's Great Thinkers. Frequently, inteviewed around the world by journalists – including the BBC – he would deftly communicate how integral psychology was for understanding such cultural phenomena as road rage. He was also one of the most widely referenced scientists as journalists reported on the far ranging effects of Type A behavior on health.

While the field of psychology continues to spawn new divisions, Charlie's work continues to penetrate boundaries. For example, he was one of behavioral medicine's early visionaries as he constantly recognized vital linkages among psychological and medical variables. His usage of the STAXI and STAXI-2 shined novel light on how anger suppression and control mechanisms critically affected health, leading him to be forefront of scientific discussions regarding relationships among anger, stress, heart disease, and cancer.

While reared and steeped in academic literature, Charlie never became pedantic or spoke in platitudes; he remained grounded in the belief that we psychologists needed to remain understandable to the everyday bystander. As one of Dr. Spelberger's final graduate students, I was always amazed by the hard-edged practicality he brought to every single sentence we wrote. Co-authoring with Charlie meant long hours pouring over drafts until they were perfect; he was a perfectionist par excellence. Going through 50–70 iterations was standard practice. But ask anyone who has read a publication with his esteemed name on it, and you will hear them say that Charlie made complexity simple. His refreshingly clear writing style and chemistry-like breakdown of psychological phenomena was no doubt a reason his measures and theory disseminated deeply into applied business fields such as occupational stress assessment with his Job Stress Survey.

Persistent Leadership, Service, and Recognition

Constantly focused on providing effective leadership, Spieberger became the one hundredth president of the APA, and his presidential motto was "Giving Science Away." He also served as president of eight psychological associations, four APA divisions, and four international associations. Reaching the status of an elite, nationally recognized scientist, he was also chair of the US Council of Scientific Society Presidents (CSSP). Spielberger also became the twenty-fifth president of the first multinational psychological organization, the International Association of Applied Psychology (IAAP), and was founder of IAAP's Assessment Division. With a bottomless tank of energy, in 1980 he brought researchers from 35 countries together and established a new psychological specialization, with the Society for Test Anxiety Research (STAR).

Spielberger was recognized with more than 23 awards and was a Fellow in 14 APA divisions, further testament to the elite magnitude of recognition he achieved. Spielberger's awards included, as follows: *Distinguished Contributions to the International Advancement of Psychology* (APA, 2005); *Life Achievement in the Application of Psychology* (APA, 2003); and *Distinguished Sustained Contributions to Education in Psychology* (APA, 1992). Spielberger was elected a Fellow by the Academy of Behavioral Medicine Research (1984) and a Distinguished Practitioner of Psychology by the National Academies of Practice (1984).

There is no doubt that the voluminous scholarship, passionate collaborativeness, and worldwide diplomacy Charles Donald Spielberger accomplished have collectively produced a landmark of such epic proportion that future generations around the world will continue to view it as a towering achievement. Spielberger, truly one of the The Greats, served psychology with a passion rarely found, yet internationally appreciated. Charlie Spielberger passed away due to congestive heart failure on June 12, 2013, leaving behind his loyal wife, Carol, and son, Nicholas.

See Also

Anger
Anger and Hostility, Assessment of
Anxiety
Anxiety, Assessment of
Test Anxiety

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Clark, Kenneth and Mamie

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Kenneth B. Clark and Mamie Phipps Clark were two of the most influential psychologists of the mid-twentieth century. During the turbulent times of Jim Crow, segregation, and the Civil Rights Movement, the Clarks' work played a key role in increasing understanding of racism, its impact on child development, and the dismantling of racist systems and amelioration of their negative effects.

Kenneth B. Clark

Kenneth B. Clark was born in 1914 to a cargo superintendent father and seamstress mother in the Panama Canal Zone. His mother, determined to give her children better education and employment opportunities, relocated the family to New York City where she raised young Kenneth and his sister on her own. His father stayed behind in Panama because he believed the racism in the United States would prevent him from finding a job of equal status (Jones & Pettigrew, 2005; Martin, 1994).

The family settled in Harlem, with its very diverse population. In integrated classrooms, Kenneth noticed teachers held him to the same high standards as his white counterparts. This helped him conclude that all teachers should expect the same performance from their students, and any discrepancies in performance are not attributable to race (Martin, 1994).

In high school, Kenneth had his first direct experiences with racial discrimination. In the New York schools, most Black students were tracked into vocational programs. When Kenneth's mother found this out, she went straight to the school and put a stop to it. She did not immigrate all the way from Panama for her son to be trained as a factory worker. He also qualified for, but was denied, an award for excellence in economics (Jones & Pettigrew, 2005; Martin, 1994).

Kenneth entered Howard University as an undergraduate student, intending to study medicine. However, he took a psychology class with Francis Sumner, the first African American to receive a doctorate in psychology, and was fascinated with the idea of

understanding the complexities of human behavior, such as racism. After graduating with his bachelor's, Kenneth continued to work with Sumner, completing his master's in 1936 (Martin, 1994).

Kenneth was encouraged by his professors to pursue a PhD and was accepted into the doctoral program at Columbia University, becoming the first African American to receive a PhD in psychology from that institution in 1940. Post-degree, Kenneth taught briefly at Hampton Institute, and then became the first African American faculty member at City College of New York in 1942 and full, tenured professor by 1960 (Martin, 1994).

Much of Kenneth's work centered on the effects of racism in education. Research conducted with his wife was very influential in the 1954 Supreme Court ruling in *Brown vs. the Board of Education* to end school segregation. Despite this, schools across the United States remained largely segregated. In 1962, with the support of federal funds, Kenneth created the Harlem Youth Opportunities Unlimited (HARYOU) whose mission was to study and develop strategies for decreasing juvenile delinquency. As chair of HARYOU, Kenneth sought to overhaul the public education system in Harlem with an aggressive agenda including increased integration, improved reading skills, stricter review of teacher performance, and local community participation. HARYOU produced a 620-page report detailing these recommendations; however, few of these recommendations were implemented due to strong political opposition. Nonetheless, HARYOU became known as the first community-action program and a model for future endeavors. Kenneth expounded on his experiences with HARYOU in his best known book, *Dark Ghetto: Dilemmas of Social Power* (1965). Other books by Kenneth Clark include, *Prejudice and Your Child* (1955), *A Possible Reality* (1972), and *Pathos of Power* (1973).

In 1967, Kenneth founded the Metropolitan Applied Research Center (MARC), which focused on identifying and solving the problems of the urban poor. In 1970, the Washington, DC, school board invited MARC to design a new educational program for their students, most of whom were poor and Black. Kenneth based his reforms for education in Washington, DC, on ideas from HARYOU, but again ran into political opposition when the superintendent of schools challenged Kenneth's central hypothesis that ghetto children could be held to the same standards as "normal" children (Martin, 1994).

Despite these setbacks, Kenneth remained committed throughout his career to the idea of integrated education and the need for radical reforms in the educational system. In the 1980s, he lamented over the fact that school systems in the United States continued to fail to meet the needs of poor Black students, and by the 1990s expressed doubt that things would ever change (Martin, 1994).

Kenneth pioneered many "firsts." Besides those mentioned above, Kenneth was the first African American to join the New York State Board of Regents, and the first African American president of the Society for the Psychological Study of Social Issues, and the APA (Jones & Pettigrew, 2005; Martin, 1994). As president of APA from 1970–1971, Clark worked hard to increase the organization's sense of social responsibility. He arranged for Martin Luther King Jr. to address APA officials, met with leaders of the Association of Black Psychologists, worked to diversify the ranks of graduate students, established the Board of Ethical and Social Responsibility, and a task force on the status of women (Jones & Pettigrew, 2005).

Mamie Phipps Clark

Mamie Phipps was born in 1917 in Hot Springs, Arkansas. Her father, a native of St. Kitts in the British West Indies, was a physician, and her mother assisted in her father's practice. Growing up, Mamie attended segregated schools. She received a scholarship to attend Howard University where she initially majored in mathematics and physics (Warren, 1999). However, she became disenchanted with the unenthusiastic attitude of her male professors. When she met Kenneth, who was already working on his masters, he convinced her to study psychology. The two married during Mamie's senior year (Butler, 2016; Jones & Pettigrew, 2005; Lal, 2002; Warren, 1999).

After graduating from Howard in 1938, Mamie worked that summer as a secretary for the law firm of William Houston where she was impressed with the civil rights work of attorneys like Thurgood Marshall and William Hastie (Butler, 2016; Lal, 2002). That fall, she began the master's program at Howard. Her thesis, titled "The Development of Consciousness of Self in Negro Pre-School Children," included the famous doll experiment (Clark & Clark, 1939a) in which African American children were presented with black and white dolls and asked a series of questions, such as which doll was pretty, nice, and a desirable playmate. She found that African American children consistently attributed more positive traits to the white dolls and negative ones to the black dolls. The Clarks concluded that the racism, oppression, and discrimination experienced by Black children in White America led to lower self-esteem and self-image. This research was central to the *Brown vs. Board of Education* Supreme Court decision, but also linked two broader, emerging fields of study – racial prejudice and child development (Butler, 2016; Guthrie, 1990; Lal, 2002; Warren, 1999).

Mamie went on to the doctoral program at Columbia University, the second African American (after her husband) to do so. She worked with Dr. Henry Garrett, who made it clear he believed Blacks and Whites had differing mental abilities and supported segregated education. He also believed her PhD was simply preparing her to work as a high school teacher for Blacks in the South. Nevertheless, Mamie completed her PhD in 1943 (Butler, 2016; Warren, 1999).

Mamie soon realized that employment was almost impossible to find as an African American woman with a PhD in psychology. It broke her heart to see jobs given to less qualified White counterparts. Between 1944 and 1946, she worked as a data analyst for the American Public Health Association and as a research psychologist with the US Armed Forces Institute, but felt dissatisfied with both these positions (Butler, 2016; Lal, 2002; Warren, 1999).

In 1946, Mamie obtained a position at the Riverdale Home for Children, working with Black, homeless girls. She became disturbed when she noticed White children had access to a wide array of psychological and psychiatric services, but not Blacks. She pushed for social service agencies to provide these services to Black children, to no avail (Butler, 2016; Jones & Pettigrew, 2005; Lal, 2002; Warren, 1999).

Mamie continued to focus on issues facing minority youth as trustee for several influential organizations, including Teachers' College at Columbia University, Mount Sinai Medical Center, the New York Mission Society, the New York Public Library, the Phelps

Stokes Fund, the Museum of Modern Art, and the American Broadcasting Company. She also participated in several advisory groups, such as HARYOU and the National Head Start Programming Committee (Butler, 2016; Warren, 1999).

Despite facing racism and sexism throughout her career, Mamie received several awards, including distinguished alumni awards from Howard and Columbia, honorary doctorate degrees from William College and Pratt Institute, and the prestigious fellowship award from the American Association of University Women (Guthrie, 1990; Warren, 1999). While her work helped move forward educational equity for minority youth, and the development and provision of psychological services for this population, until her death she believed the field of psychology had not done enough for the betterment of society (Warren, 1999).

A Power Couple

While both of the Clarks had an impressive record of individual achievements, they also made significant contributions together. Between 1939 and 1950, the Clarks published five articles based on the famous doll experiment (Clark & Clark, 1939a, 1939b, 1940, 1947, 1950; Butler, 2016; Martin, 1994). This research played a critical role in the legal battle to end school segregation, which culminated in the landmark Supreme Court decision in *Brown vs. the Board of Education*. Both Clarks served as expert witnesses in this case, which garnered recognition far beyond the field of social psychology (Keppel, 2002; Pickren & Tomes, 2002), but with more credit going to Kenneth than Mamie (Lal, 2002; Warren, 1999).

The Clarks carried a special burden for providing quality education and psychological services to minority youth. After Mamie's experiences working with homeless Black girls at Riverdale and her unsuccessful efforts to obtain social services for this group, the couple decided to do it themselves. They founded the Northside Center for Child Development (formerly known as the Northside Testing and Consultation Center). The center was the first of its kind to offer psychological and casework services to Harlem families. The center also conducted research on racial biases in education which provided evidence that the issues faced by minority children are primarily due to environmental conditions, not individual psychopathology. Mamie served as executive director from 1946–1979 (Butler, 2016), and Kenneth as the research director from 1956–1966 (Warren, 1999). They initially funded the center with money from Mamie's father, and staffed it with volunteer psychologists, psychiatrists, and social workers. At first, members of the community were fearful of the stigma associated with seeking psychological services. However, the center gained recognition after evaluating and advocating for African American students wrongfully placed in special education classes (Jones & Pettigrew, 2005; Lal, 2002; Warren, 1999). The center grew to a full-service agency providing psychological and psychoeducational assessments, psychological consultations for behavioral and emotional problems, vocational guidance, and parent training (Lal, 2002; Markowitz & Rosner, 2013).

After Kenneth retired from City College in 1975, he, Mamie, and their two children – Kate (born in 1940) and Hilton (born in 1943) – founded Kenneth, Phipps, Kenneth, & Harris, Inc., a consulting firm purposed to help large companies design and implement minority

hiring programs. Some of their clients included AT&T, Chemical Bank, and Consolidated Edison (Martin, 1994).

Mamie Phipps Clark died in 1983 at the age of 66. Kenneth Bancroft Clark died in 2005 at the age of 91. Although not all of their hopes and dreams were realized due to racism, sexism, and political and community resistance, Kenneth and Mamie Clark remained committed to improving educational opportunities and psychological services for poor and minorities. Their contributions to psychology and society cannot be denied and will forever be appreciated.

See Also

Culture and Personality
Janet Helms
Joseph L. White
Maria Root
Personality and Prejudice
Racial/Ethnic Identity
Reginald Jones
Universality vs. Cultural Specificity of Personality
VREG (Visible Racial/Ethnic Group)

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Helms, Janet E.

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Janet E. Helms, is a noted counseling psychologist who, since the mid-1970s, has contributed significantly to applied research and cross-cultural considerations in theory, measurement, and application of racial identity (RI) theory. Born in Kansas City, Missouri, Helms earned BA and MA degrees in psychology from the University of Missouri-Kansas City, and a PhD degree in psychology, with specialization in counseling psychology, from Iowa State University. As a Black student attending a predominantly White high school, Helms demonstrated strong aptitude for mathematics, love of reading, award winning writing, and developed keen awareness and personal resistance to devaluing racial experiences with White teachers and peers. These combined academic and personal strengths as a high school student, serve as a foundation for Helms's influential contributions to the development of racial identity models for people from a variety of racial and ethnic backgrounds, corresponding scale development (e.g. Black Racial Identity Attitude Scale, People of Color Racial Identity Attitude Scale, White Racial Identity Attitude Scale), and a substantial body of research.

As an endowed chair, the Augustus Long Professor in Measurement and Assessment, in the Department of Counseling, Developmental, and Educational Psychology at Boston College, Helms has extended her expertise in applied research and assessment of racial identity to social justice issues such as, racial group conflicts on college campuses, cultural factors in research on mental health and medical health racial disparities, and integrating race and culture in teaching, law, and public policy. Helms's scholarship and research on Black and White racial identity attitudes has inspired innumerable graduate students of various racial and ethnic groups (from graduate programs throughout the nation and internationally) to apply racial identity attitudes in their theses, dissertations, and subsequent faculty research programs, on topics related to counseling and psychotherapy processes, personality development, mental health functioning, clinical supervision, family and group interactions, and a variety of social systems. As founding director of the Institute for the Study and Promotion of Race and Culture (ISPRC) at Boston College, Helms has annually hosted the *Diversity Challenge Conference,* which convenes national and international

participants sharing race and cultural theories, research, practices, and public policies to promote increased understanding of the meaning of race and culture in today's society, and to address the societal conflicts associated with race or culture in practical settings and systems.

Racial Identity

Helms's racial identity attitude scales measure individuals' internalization of their perceived racial socialization experiences of oppression or privilege that pertain to the individual's racial group. To date (2015), Helms has published five books, 17 book chapters, over 65 refereed journal articles, and four international conference keynote presentations on racial identity theories, measurement, and applications. Helms's racial identity models represent individuals' attitudes, thoughts, feelings, and behaviors toward one's self and one's own racial group, and toward members of the dominant or other non-dominant racial groups. Helms's Black and People of Color racial identity models expanded on the formulations of William Cross's Black Racial Identity and Atkinson, Morten, and Sue's Minority Identity Development theories. According to Helms's models, African Americans, Latino/Latina Americans, Asian/Pacific Islander Americans, and Indigenous or Native Americans (ALANA), and related immigrant groups' (RIGS), racial identity development is a process of abandoning internalized racism or socialized negative conceptions of one's racial group to develop affirming attitudes about self and one's own racial group. The White racial identity model describes processes by which White individuals overcome the internalized belief that they are superior to other racial groups and come to recognize their privileged status and reject the various manifestations of racism.

In 1984, Helms first published her White racial identity development theory in *The Counseling Psychologist* in a seminal article, "Toward a theoretical explanation of the effects of race on counseling: A Black and White model." Helms recognized the one-sided focus in racial psychology research of the 1970s and early 1980s on Blacks' and other People of Color's psychological reactions to societal oppression and detrimental effects of racism, and the absence of research examining the impact of racial superiority beliefs, unearned privilege, and discriminatory actions on the psychological development of White individuals. The early version of Helms's theory was consistent with scholarly theorizing of that time, that racial identity development was a linear stage-wise process. She theorized that White individuals potentially develop through five stages of varying complexity (i.e. Contact, Disintegration, Reintegration, Pseudo-Independence, and Autonomy) as they increase self-awareness in interactions with Blacks or People of Color. The terminology of "stages" did not accurately reflect the idea that as individuals experience racist events in various aspects of their lives, their reactions might be characterized by more than one stage at a time. Therefore, as a result of empirical measurement studies, Helms modified her theory by replacing the concept of racial identity stages of development to racial identity statuses (e.g. underlying psychological dynamics of individuals' racial development) or schemas (e.g. measurable aspects of the individual's racial identity development). Schemas or measurable aspects of each White racial identity schema are: *Contact* (no consciousness about race, passive acceptance of societal norms for distribution of resources), *Disintegration* (confusion

concerning commitment to White racial group and ambivalence about what it means to be White), *Reintegration* (idealization of White racial group and adherence to external standards of White entitlement and perceptions of other racial groups), *Pseudo-Independence* ("good-bad" dichotomy of racial groups and belief in bringing other racial groups up to White standards), *Immersion/Emersion* (questioning, analyzing, and comparing White racial group status to others, and awareness that Whites must abandon racism), *Autonomy* (self-affirmation of White identity without standard of superiority over other racial groups). Helms proposes overlapping use of more than one schema at a time.

Helms's White Racial Identity Development model has been prominent in race and culture literature in the counseling psychology field. A review of the literature reveals empirical studies utilizing the White Racial Identity Attitude Scale (WRIAS) to measure personality characteristics, racial identity characteristics of counselors or therapists-in-training, applications to counseling interventions, teaching about racial identity in classroom settings, supervision and training, organizational climate, schools, and families. Additional publications include studies of psychometric properties of the WRIAS, commentaries, critiques, and rebuttals of the White Racial Identity Development theory or measurement, as well as new theories based on Helms's theory and revisions of her theory.

Testing and Assessment

Helms has used her expertise in tests and measurement to study cultural and contextual factors, such as racial identity, socio economic status, and chronic experiences of systemic racial discrimination, in assessment outcomes in high stakes cognitive abilities testing. She has advocated for the study of individual responses, instead of studying differences between- and within racial groups, when interpreting racial identity data and standardized testing. Helms developed the individual-differences (HID) fairness model as a method for quantifying the effects of racial and cultural variables on African Americans, Latino/as, Asian Americans, and Native Americans (ALANAs) as compared to White test takers' scores on tests of cognitive abilities. The HID fairness model identifies the source of fairness or unfairness in the interactions between individual test takers' internalized racial experiences, experiences of discrimination in environmental socialization and the testing process. Helms proposes that if the aforementioned factors were eliminated from test scores, it would reduce test-score disparities between Whites and ALANA individuals on cognitive abilities tests that are frequently used to evaluate, diagnose, select, or promote individuals in various settings. Since 1992, Helms has published 13 refereed journal articles and five book chapters related to racial bias and racial and cultural factors in standardized testing.

Distinguished Mentoring, Awards, and Service in Professional Organizations

Throughout Janet E. Helms's academic career, advising and mentoring graduate students has been a hallmark of her professional commitment, identity, and reputation. Helms began her career in academia at Washington State University in Pullman (1975–1977)

followed by Southern Illinois University–Carbondale (1977–1981) where she was first tenured and promoted. From 1981–2000, Helms moved through the ranks of academia to full professor at the University of Maryland-College Park, and, in 2000, moved to Boston College. Throughout her tenure at each institution, Helms has established a "familial network" of graduate students who found an advisor and mentor who taught, empowered, and helped them achieve their desires in adapting psychology to their racial and cultural perspectives in both research and practice, including White students dedicated to social and racial justice in psychology. Furthermore, Helms serves as mentor to a host of graduate students from other programs throughout the nation. She fosters a natural bond among the students she mentors, whereby they support one another as part of "the Janet Helms' family." In 1991, the Columbia Teachers' College Annual Cross-Cultural Roundtable honored Helms as the first recipient of an award in her name, the *Janet E. Helms Award for Scholarship and Research Mentoring*, which is awarded annually to the person who best exemplifies Helms's accomplishments in training culture-focused researchers.

Additional distinguished awards received by Helms include: American Psychological Association (APA) Society for Psychological Study of Culture, Ethnicity and Race 1999 Distinguished Career Contributions to Research Award; the APA Society of Counseling Psychology's highest research award, the 2002 Leona Tyler Award in recognition of an outstanding research career; the 2006 APA's Distinguished Contributions to Education and Training in Psychology Award; the 2007 Association of Black Psychologists' Distinguished Psychologist Award; the 2008 APA Award for Distinguished Contributions to Research in Public Policy; the Distinguished Elder Award at the 2009 APA National Multicultural Conference and Summit; the 2011 Elizabeth Hurlock Beckman National Honor Award that Recognizes Those Who Have Inspired Students to Change the World, Gail McKnight Beckman Trust; and the APA Society of Counseling Psychology 2015 Elder Recognition Award for Distinguished Contributions to Counseling Psychology. Helms has also been appointed Fellow in three APA divisions: 1987 Society of Counseling Psychology (Division 17), 1988 Society for Psychological Study of Culture, Ethnicity and Race (Division 45), 2013 Society for the Psychology of Women (Division 35), and Honorary Degree recipient, Doctor of Science, Honoris Causa, The Chicago School of Professional Psychology, July 2013.

Helms has served in professional organizations through participation on multiple journal editorial boards and a host of leadership positions in Divisions 17, 45, and 35 of APA. She served on five APA journal editorial boards, including associate editor of *Assessment,* and the editorial board member of *Journal of Counseling Psychology, Journal of Multicultural Counseling and Development, and* Council of Elders *Cultural Diversity & Ethnic Minority Psychology*. Her most notable leadership positions in APA include president-elect, 2008–2009 president, and past-president of Division 17, one three-year term on the executive board of Division 45, four three-year terms on the executive board of Division 17, two three-year terms as APA Council representative (Representing Division 17), secretary Division 17, member of the APA Committee on Structure and Function of Council, member of the APA Committee on Testing and Assessment, APA's representative to the Joint Committee on Psychological and Educational Testing, and co-chair of the Joint Committee on Psychological and Educational Testing.

See Also

Cultural Free/Fair Intelligence Test
VREG (Visible Racial/Ethnic Group)

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Born in Haarlem, Netherlands on October 2, 1928, Gerard (Geert) Hendrik Hofstede was an individual who would become an eminent scholar in cultural studies, cultural mindset, and behaviors, and cross-cultural engagement in organizations (Hofstede, 2010). Dr. Hofstede was raised in the Netherlands and attended schools in The Hague and Apeldoorn west of Amsterdam. He graduated from Delft Technical College in 1953 with a M.Sc. in mechanical engineering. His studies also included various internships, such as a voyage to Indonesia, perhaps initiating his global interests.

Upon graduation, he served in the Dutch military for two years and then proceeded to work in a variety of industry sectors in the Netherlands (Hofstede, 2010). It was during his 10 years with industrial firms that Hofstede's interest in the social sciences was ignited. He began a doctoral program in social psychology at Groningen University in northern Holland and simultaneously began to work part-time for IBM (1955–1965). With IBM, he held positions in management training and personnel and founded the Personnel Research Department. He was awarded a PhD, cum laude in 1967. The title of his thesis was "The Game of Budget Control."

The basis for his initial, most notable contribution regarding the cultural mindset arose from his work in the first international survey conducted by IBM in 1966 (Hofstede, 2010). The survey was designed to study the values of IBM employees globally. From survey findings, Hofstede noticed patterns and trends, particularly the similarities and differences of values and opinions among nations and the sectors from which these differences emerged (Hofstede, 2010). The seed was planted, and Hofstede continued his journey in the arena in which he had greatest passion and curiosity – the cultural mindset or *software of the mind* (1991).

Context and Culture as Starting Points

Hofstede is widely known for his identification of cultural dimensions across 50 nations and within identity sectors (i.e. gender, geographical location), which emerged from

the IBM study (Hofstede, 2010). In his analysis of IBM data, Hofstede uncovered contextual information about how socialization in a country and culture may influence mindset (i.e. cognitive processes) and values. He defines culture as a "collective programming of the mind distinguishing the members of one group or category of people from another" (Hofstede, Hofstede, & Minkov, 2010, p. 6). He posits that we acquire our *societal* cultures from when and where we are born, and most of the cognitive programming is developed during childhood; according to Hofstede, this is how culture is learned. He goes on to say that over time culture may change because of geographic changes, or major life events, and as such, individuals adapt to the cultural changes. There are numerous interchangeable terms used to discuss his model, including cultural levels, national cultural values, dimensions of national values, and identity sectors.

Cultural Levels

It is important to consider the concept of cultural levels because they provide explanations on how differences occur within nations regarding the domination of national values that will be discussed in the next section. The prominent cultural levels identified by Hofstede (1991) include: the national level, regional and/or ethnic and/or religious and/or linguistic affiliation level, organizational level, generational level, gender level, and a social class level. The "programming" necessary for these levels may or may not be in agreement, because these levels also represent variables that may be oppositional. Two such examples are religious and gender socialization. Thus, these levels cannot be seen as mutually exclusive. The programming of each level may create conflict that may impact the predicted behavior of an individual. A person may be expected to respond in a particular way because of others' assumptions about their cultural affiliation, but their behavior may be contradictory. For example, older Latino men are considered more conservative and protective of their daughters. When they demonstrate more pro-feminist behavior in support of their daughters' independence, this may be confusing to someone who holds a stereotyped view of Latino men. Individuals of Muslim background hold religious values and practices regarding prayer at prescribed times. This may be questioned in some work environments in the same nation in companies that are not open to Muslim religious practices.

Throughout these cultural levels, cultural differences appear through symbols, heroes, rituals, and values. These elements are considered to make up the "onion model," with symbols being the outer later and most superficial manifestation, and values being the core. Symbols are defined as "words, gestures, pictures or objects that carry a particular meaning and which are primarily recognized by those who share the same culture" (Hofstede et al., 2010, p. 8). Sports images are one example. In most countries, soccer is the national sport; in the United States, it is either baseball or football. Another example is the use of images depicting snow on standardized tests as these have often been confusing to children who grew up in tropical countries.

National Cultural Dimensions, Values, or Indexes

Hofstede examined cultures based on four dimensions or indexes: power distance (high to low), uncertainty avoidance (high to low), collectivism versus individualism, and femininity versus masculinity. Later, in collaboration with other researchers, Hofstede added a fifth and sixth dimension: long-term orientation and indulgence versus restraint.

Each dimension provides insight into how national societies are organized structurally and how they deal with and place value or prioritization on certain practices. For instance, Asian countries are more collectivistic and male-led. These demonstrate the values of masculinity and collectivism. "Problem" areas may emerge because of globalization and the education of women for new work opportunities. Furthermore, there is an interactional dynamic among the dimensions. For example, Hofstede conceptualized the dimension of uncertainty avoidance as a method to cope with uncertainty or unpredictability. Persons from predominantly an individualistic mindset – who presume a greater sense of control and autonomy will likely be at variance from those in collectivistic societies. The same goes for individuals from societies that are masculine in their value structure. Hofstede suggests that these dimensions serve a purpose for a given society because they may be invoked as normative in times of discord. The dimensions will be discussed in brief.

Individualism Versus Collectivism Index

I/we/they are terms used to suggest the dimensions of individualism (I) versus collectivism (we/they) that manifest in different nations. Nonindustrial countries, ones highly dependent on agriculture, are generally collectivistic in structure. That is, there is greater interdependence among family and community members to achieve shared goals. Of course, there will be intracultural differences. For example, families in rural communities in Mexico, China, or India may demonstrate more collectivistic behaviors while corporate employees in metropolitan areas in these countries are socialized to be more individualistic per corporate organizational structures and goals. At the same time, corporate-like organizations across the world do not all behave similarly as the prevailing national or nation cultural mindset/worldview will influence culture-specific norms and behavior in an organization. Some firms will be more hierarchical and stress individual performance while others will emphasize a team approach. Similarly, organizations, like families, can be collectivistic and interdependent while still promoting individual performance. The United States is considered the prototypical example of an individualistic culture, built on historical roots by founders who advanced thinking to suggest that success occurs by "pulling oneself up by one's bootstraps." One example that persists in the United States is misunderstandings of the culture of American Indian tribes. By definition, *tribe* suggests collectivistic models.

Another fundamental premise in an individualistic culture is competition and winning at all costs. Again, this mindset is not one inclusive of women, persons of color, low socioeconomic status groups, and individuals not networked through social capital. For this dimension, individualistic Americans are seen as braggarts compared to the Dutch, according to Hofstede.

There are many other examples of the I/we/they dimension. There is the power of the group in organizations or professional societies. Here, members generally ascribe to professional standards or ethics. Not doing so may mean expulsion. Collectivistic societies, perhaps those led by nondemocratic leaders, also have ways of controlling people's behavior, such as arresting individuals with differing views.

Femininity Versus Masculinity Index

He, she, and *we* are used to discuss this dimension. According to Hofstede (1980), masculinity is culture-bound universally, and most countries or nations are high in the masculinity value. "Gender roles" is considered a modern term to describe the qualities and/or characteristics that are stereotypically assigned to gender. Gender roles modeled by parents contribute to the mental software that programs children's understanding of gender. Globally, socialization prioritizes men over women with the latter continuing to be seen in roles of service and nurturance, and the former in roles of power and authority. "Gender" qualities are learned very early in mostly unconscious ways. For example, women are expected to be caring and nurturing, and this behavior is even desirable in the workplace. Women managers, it is reported, are preferred to male managers because they are more understanding and better listeners. Generally, women are taught not to be first or to take the lead because this role belongs to men.

Power Distance Index (High to Low)

Power distance explores human inequality in various cultures. It is defined as "the extent to which the less powerful members of institutions and organizations expect and accept that power is distributed unequally" (Hofstede, 2005, p. 3). Hofstede proposes a low and high power distance index for this dimension. High power distance is reflected in the behavior of "less powerful" members of society, or the "followers" of those in power. A low degree of power distance suggests that the society believes that inequality is incorrect and attempts to minimize it. When a high degree of power distance is present in a society, it suggests that inequality is considered a normal part of society. Contemporary examples may be in countries where dictatorship prevails with those at the top consistently taking the spoils while the masses go hungry or illiterate.

Uncertainty Avoidance Index

To begin with, this is not risk avoidance, although such behavior may be attributed to high scores on the uncertainty avoidance index. Said individuals and certain sectors of nations (i.e. geographic location, age, and occupation status) may prefer rules and guidelines for behavior. Their tendency is to seek approval and absolute truths, particularly from those in higher power. In countries where there is a prevailing form of governance that is not

democratic, citizens may be accustomed to conducting themselves according to prescribed codes of behavior out of fear or simply because they have always behaved that way.

Individuals with lower scores on this dimension may be more accepting of ambiguity and uncertainty. They may also be open to alternative ways of thinking and not believe there is only one "right" way. For instance, when considering the age sector, it is possible that teens and young adults are more comfortable with ambiguity, engaging in questioning, and not always accepting of one singular response or idea. Retired persons or individuals on a fixed income may have high scores on the uncertainty avoidance index because of perceived and/or real restrictions on their ability to make choices.

Long-term Orientation and Indulgence Versus Restraining

The last two cultural dimensions or indexes emerged from a World Value Survey conducted with 93 samples of national populations. Involved in these samples were commercial pilots, service managers, and statisticians (Minkov, 2007). A long-term orientation describes a mindset that is more open to change and flux. This does not mean that individuals do not plan; rather, they are willing to consider multiple long-term options. Conversely, individuals with a short-term orientation are more inclined to see the past as guiding the future. They cannot imagine, or prefer to not see, variability in life.

Indulgence is highly characteristic of nations with greater productivity and technological advancement, such as the United States. Indulgent individuals may also tend to be more materialistic and have options on how to enjoy life. Those who practice restraint are likely to be from nations where there is a restriction of freedom, fewer choices economically, and a need to endure or go without.

Reflections

Perhaps the intersection of the dimensions or indexes is apparent. It is likely that individuals with high power distance and uncertainty avoidance are also more restrained and have a short-term orientation. As may be apparent, there is a degree of relativity to all of the dimensions as they interact with cultural levels or sectors.

Current Status

Hofstede has been married to his wife Maaike A. van den Hoek since 1955; they have four sons, ten grandchildren, and one great-grandchild (Hofstede, 2010). Hofstede has taught at various institutions, authored over 150 publications, and has received a plethora of honors. He and his son, Gert Jan, a population biologist and social scientist in information management, host a website (www.info@geerthostede.com) addressing international perspectives on culture. Hofstede is Professor Emeritus of Organizational Anthropology and International Management at Maastricht University in the Netherlands (Hofstede, 2010).

See Also

Allocentrism vs. Idiocentrism
Culture and Personality
Individualism vs. Collectivism
Personality in Culture
Universality vs. Cultural Specificity of Personality

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Reginald Jones

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I am Reginald L. Jones, a Fellow of APA and National Chairman of the Association of Black Psychologists. I am here to talk to you briefly about the concerns of Black psychologists and Black people ... Our concern was not with sex in albino rats or research on sharks, goldfish and monkeys. Our concern was not with analyses of Black people and their presumed deficiencies ... Rather, our concern was with strategies for dealing with such problems as racism in education, the psychological assessment of Black people, and the mental health of Black people, employment, welfare and prisons.

Many of us hoped these would be concerns of APA. Yet our survey of the 182-page [APA] convention program revealed that the word racism appeared only once – shared with sexism. A survey of the index of Psychological Abstracts for 1960–1970 revealed that the word racism does not occur. One could conclude from such a survey that this topic is not of much concern to psychologists.

> – A speech delivered after Dr. Reginald Jones and colleagues of the Association of Black Psychologists commandeered the American Psychological Association's Council meeting in 1971.

Far from a sporadic outburst, Dr. Jones' speech at the American Psychological Association's Council meeting in 1971 was one of the many calculated maneuvers to promote social justice and equity within psychology and education. However, prior to becoming a founder of the Association of Black Psychologists, writing the seminal book on Black Psychology, publishing and editing 22 books and 200 articles, and becoming an expert on children with special needs and the psychological experiences of the African American community, Dr. Reginald Lanier Jones was simply known as "Reg" or "Reggie."

He was born on January 21, 1931, raised in the Clearwater and Miami areas of Florida to a family where creativity, success, and perseverance were staples in their bloodline. For instance, his paternal grandfather was one of a few African Americans who owned a business (a hattery) in downtown St. Petersburg, Florida during the 1930s and 1940s. His father,

Moses Jones, though not a high school graduate, independently studied electronics and eventually became a professional musician and inventor. Entrepreneurial and creative propensities were also found in the activities of extended family members, and included printing and distributing poetry, designing women's clothes, and owning a large clothing manufacturing company.

Dr. Jones' mother, Naomi Henry, had a strong influence on the development of the family's critical thinking, introspection, and understanding of societal issues. She incorporated reading into the daily activities of her children. Meal times would often include family discussions about articles from the Black and White newspapers, notable and successful African Americans, and local and national topics that impacted the Black community. Dr. Jones's mother also cultivated the family's critical thinking and reflective skills by providing constructive discipline, nurturance, and expecting her children to act with integrity. A testament to the high functioning household of Dr. Jones' mother is seen through her children's accomplishments: Dr. Jones, a distinguished scholar, researcher, and social justice advocate; his brother Kenneth Johnson, a retired 20 year Navy veteran and electronics specialist; and his sister Sheryl Johnson, an attorney.

In addition to his mother's guidance, Dr. Jones was exposed to various types of people and personalities during his summer stays with his father in the Philadelphia area. Under his father's socialization and experiential teachings, Dr. Jones became more aware of human behavior and interactions, which likely complemented his latter interests in psychology. Altogether, the successful influences within his family's history, in combination with his mother and father's tutelage, would support Dr. Jones throughout his education and career. He graduated third in a class of 165 students from Booker T. Washington high school in Miami, Florida. For his undergraduate studies, Dr. Jones had an academic scholarship to attend Morehouse College to study psychology. Next he completed a clinical psychology master's degree at Wayne State University, and subsequently worked as a military clinical psychologist before pursuing a doctoral degree in School Psychology at The Ohio State University.

Professional Career

Throughout his professional career, Dr. Jones continued to reflect his mother's leadership and his father's creativity. Like his father, Dr. Jones would create (or invent) scholarly literature and academic programs to address the needs in multiple fields such as Psychology, Black Psychology, and Special Education. In addition, like his mother was to his family, Dr. Jones would become a cornerstone in numerous professional organizations and academic programs, where he mentored and guided staff and faculty.

The existence of the field of Black Psychology is indisputably and synonymously associated with Dr. Reginald Jones. In the early 1970s, the unique experiences of African Americans and Africans were largely absent, if not non-existent, in the field of psychology. Dr. Jones would change that by devoting the next 30 years of his life to developing the field of Black Psychology. His journey began by assessing whether the Association of Black Psychology's (ABPsi) membership would be interested in what would become *The Journal of Black Psychology* (later founded in 1974). Dr. Jones also contributed by publishing

multiple resources that established and aided the field of Black Psychology. In 1972, he penned the seminal book on Black Psychology, as well as subsequent editions in 1980, 1991, and 2003. Thereafter, he authored or edited two volumes of the *Sourcebook on the Teaching of Black Psychology* (1978), which contained undergraduate and graduate course outlines, student exercises, psychometric instruments, and videos of leading Black scholars. Other books by Dr. Jones focused on multiple aspects of the Black experience, such as parenting Black youth (Jones, 1999b); the development of Black adolescents (Jones, 1989a); the development of Black adults (Jones, 1989b); culturally specific tests and measurements for Black populations (Jones, 1996), African American psychology (Jones, 1999a); African American identity (Jones, 1998a); and African American mental health (Jones, 1998b). Altogether, Dr. Jones authored more than 200 articles, 22 books, and 28 videotapes.

Not only did Dr. Jones develop a field of literature. He was also heavily involved with several higher education programs. Over the course of a 33-year career, Dr. Jones was a professor at nine institutions. He was Vice Chair of Staff Development at the Ohio State University's psychology department where he oversaw recruitment, appointments, promotions, and terminations within the department. In addition, Dr. Jones held a professorship position at the University of California, Riverside where developed a graduate program in Special Education, created the first doctoral program in Special Education within the University of California system, and eventually became the Department Chair. Shortly after, Dr. Jones became the Director of the University Testing Center at Haile Selassie I University in Addis Ababa, Ethiopia. Notably, he developed the admissions test for entry into the university, which aimed to quell the disproportionately low representation of certain tribal groups.

After his time in Ethiopia, Dr. Jones became a faculty member at Berkeley for the next 17 years. He held many positions of leadership, and was awarded the Berkeley Citation, one of the highest university honors. Towards the end of his career as a psychologist, Dr. Jones became a Distinguished Professor of Psychology and Chair of the Department of Psychology at Hampton University. Alongside Dr. James Victor, he secured a 5 million dollar grant from the US Office of Education to create the Center for Minority Special Education. There, Special Education faculty from of Historically Black Colleges and Universities and institutions with 25% or more students of color, were trained in grantsmanship. Upon expiration of the US Office of Education grant, as the Director of the Career Opportunities in Research Program, Dr. Jones secured a grant from the National Institute of Mental Health (valued greater than a million dollars), to prepare undergraduate students for graduate training in mental health research. Lastly, he also created and ran Cobb & Henry, Publishers, a privately owned book publishing company.

In addition to his work in the field of Black Psychology, Dr. Jones significantly contributed to the field of Special Education by contributing to more than 30 empirical articles, 15 book chapters, and seven books that focused on the social and educational experiences of children with disabilities and ethnic minority children. His research led to the publishing of two significant seminal papers (Jones, 1972; Jones, 1974) about attitudes, labels, and stigmas towards children with special needs and ethic minority children.

Specifically, Dr. Jones' contributions moved the field's tendency to view labels as universally harmful, towards a need to investigate the complexity of the relationship between (a) labels, (b) behavior of able-bodied persons and children with disabilities, and (c) individualized

and person-specific conclusions. By challenging the notion that children with disabilities were members of a homogeneous group who were universally rejected by others, Dr. Jones highlighted the hazards of applying generalizations to groups (i.e. viewing labeling as a universally harmful action to all members in a group), and instead introduced the hierarchal complexity of attitudes, as they relate to disability type. Further, Dr. Jones was able to masterfully identify parallels between the treatment of and conclusions about children with disabilities with the treatment of ethnic minority children, and confronted the perspective that "mainstreaming" children of color should not be universally accepted or rejected. Ultimately, his efforts enriched and shifted the discourse about attitudes towards children with disabilities, the effects of labels, the impacts of mainstreaming, and the intersectionality of children with special needs and ethnicity. Dr. Jones' scholarly contributions in Special Education were so profound that Distinguished Professor Emeritus Donald MacMillan previously stated, "any author reviewing research on attitudes towards various disability groups could not ignore [Dr. Jones'] work without being severely criticized."

Altogether, Dr. Jones' efforts left a profound imprint in the fields of Special Education and Black Psychology and is evidenced through various awards, such as the Ohio State University and the Berkeley Citations for Distinguished Achievement, the Distinguished Psychologist Award from the Association of Black Psychologists, the Award for Outstanding Publications and Service from the Black Caucus of Special Educators of the Council for Exceptional Children, the Education Award from the American Association on Mental Retardation, the J. E. Wallace Wallin Award from the Council for Exceptional Children, the Loetta Hunt Award from the Faculty for Exceptional Education at the Ohio State University, the Distinguished Alumni Award from Wayne State University, and the Norfolk, Virginia Key to the City award.

See Also

Joseph L. White

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McIntosh, Peggy

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Biographical Background

Peggy McIntosh was born in Brooklyn, New York, in 1934 and raised in New Jersey. She grew up wanting to be a teacher and, after earning a degree in English from Radcliffe College, she taught at a private girls' school and later earned a PhD from Harvard (Rothman, 2014; National SEED Project, n.d.). McIntosh co-founded the Rocky Mountain Women's Institute and later began working at the Wellesley College Center for Research on Women (now the Wellesley Centers for Women) in 1979. Formerly an associate director of the Wellesley Centers for Women, she now serves as a senior research scientist and oversees the Gender, Race, and Inclusive Education Project (Wellesley Centers for Women, n.d.). McIntosh founded the Seeking Educational Equity and Diversity (SEED) Project on Inclusive Curriculum in 1986, serving as co-director until 2011 (National SEED Project, n.d.).

Contributions on White Privilege

Personal Awareness

McIntosh's understanding of *privilege* grew out of her own experience as a woman teaching in women's studies in the 1970s and 1980s (McIntosh, 1988, 2015a). She noted that, although some men recognized women experienced disadvantages, they were not willing to accept that, as men, they experienced corresponding privileges (McIntosh, 1988). What struck McIntosh as she reviewed men's participation in feminist seminars about scholarship on women was that these men were both "nice" *and* "oppressive." She says that previously "I felt I had to choose either that they were nice or that they were oppressive" (McIntosh, 2015a, p. 16). She learned from African American colleagues, as well as the Combahee River Collective feminists, that these groups found working with White women

oppressive. This led her to a new understanding: "Niceness has nothing to do with whether or not one is oppressive" (McIntosh, 2015a, p. 17).

McIntosh began to understand that, as a White person, she needed to recognize the privilege she had been granted based on her own skin color and ethnicity. Her seminal 1988 article examined in depth what she described as "an invisible package of unearned assets that I can count on cashing in each day, but about which I was 'meant' to remain oblivious" (p. 2). The metaphor of an invisible and weightless knapsack highlighted both the lack of awareness one could have about such privilege, as well as the ease with which one could draw upon its benefits. McIntosh went on to identify 46 ways in which she experienced skin-color privilege, through common experiences she had come to expect and of which she had been unaware. Examples included: "I can turn on the television or open the front page of the paper and see people of my race widely and positively represented" (#6); "If I declare there is a racial issue at hand, or there isn't a racial issue at hand, my race will lend me more credibility for either position than a person of color will have" (#30); and "I can arrange my activities so that I will never have to experience feelings of rejection owing to my race" (#42) (pp. 4–7).

Discussion of Privilege

McIntosh was clear that the word *privilege* seems too positive for the impact it has, in that it negatively affects both those who have it and those who do not, and is detrimental to society as it serves to maintain oppression and discriminatory systems. She also noted the multiple bases of "interlocking oppressions," and her discussion of privilege extended across numerous experiences and identities (e.g. social and economic class, sexuality, and religion). McIntosh concluded her original 1988 article by questioning whether those with knowledge of their unearned privilege would act to try to decrease such preferential systems.

Throughout the years, McIntosh's consistent message has been that individuals are not personally responsible for the systemic privilege that benefits them. A key point in her discussions is that we are all privileged in some ways and oppressed in others (McIntosh, 2012, 2015a; TEDx, 2012). Privilege is part of a systemic framework that was not created or requested by those who experience it. Such realizations help reduce defensiveness and guilt that can interfere with accepting awareness and engaging in action to combat such a system. While not responsible for the systems into which they are born, individuals *are* responsible for what they do with their privilege to equalize it for others. Rather than being defensive, McIntosh believes individuals who are not burdened with guilt, shamed, and blamed are more likely to openly listen to the experiences of others and consider ways in which they experience privilege in their own lives (McIntosh, 2012). This approach has served as the basis for much of McIntosh's subsequent work.

Leader and Role Model

Peggy McIntosh has been instrumental in identifying and shaping our understanding of "privilege" and, more specifically, our understanding of "White privilege." For many White individuals, she provided a language and a way to understand their unearned privilege

based on skin color. And, for broader audiences, her framework provided the opportunity to examine privilege in their own lives. McIntosh observed that her work on White privilege has had a differing impact on different readers. As she noted, for White readers her work often opened their eyes to ideas they'd never considered. For people of color, it provided support and evidence of what they'd known for years: there is a systemic framework that privileges some based on race (McIntosh, 2015a; Rothman, 2014).

McIntosh recognized that she was neither the first to articulate the concept of White privilege nor to write about it. When asked why she thought her 1988 paper on the topic had made such an impact, she stated, "I think it was because nobody else was writing so personally, and giving such clear examples, drawn from personal experience, which allowed readers to understand this rather complicated subject without feeling *accused*" (Rothman, 2014, para 11).

Moreover, McIntosh has served as a role model for many by sharing her deeply personal experiences of understanding and trying to confront her own privilege. She did so in her initial work on this subject (McIntosh, 1988) and has continued to do so throughout her career (McIntosh, 2015a). In her 2015 chapter *Real-izing Personal and Systemic Privilege*, McIntosh discussed in depth how she came to an understanding of White privilege and a commitment to seeing it and working to address it in her own life. She described a shocking lesson in racism she learned as a young girl from her grandmother. As an adult, she realized White privilege had allowed her not to remember the experience and to distance herself from it. She openly shared how she actively prayed for an understanding of the unearned privilege and advantages she experienced in contrast to her African American colleagues and how the first example came to her in the middle of the night. She noted, "After three months, when the examples stopped coming, a voice in me said, 'Peggy, you should publish this. It is probably the most important work you will do in your life.' And so it has been" (McIntosh, 2015a, p. 19).

In addition to describing and explaining White privilege, McIntosh has also called on those who understand their privilege across any domain to do something about it. She developed the metaphor of a *bank account* that privilege provides (McIntosh, 2009). Although never personally requested, one still has this bank account of privilege and can use it to effect change. In her 2012 TEDx talk, *How Studying Privilege Systems Can Strengthen Compassion*, McIntosh discussed how she has used her own personal "bank account of White privilege to weaken the system of White privilege," noting that it "keeps re-filling because I get the benefit of the doubt [from other White people]." She concluded her talk by saying, "It has been transformative to use … the power I did not know – I was never taught – that I had, in the service of a kinder, fairer, and more compassionate life for everyone."

The SEED Project

Seeking to expand her work and help others apply it more broadly, McIntosh founded the SEED Project on Inclusive Curriculum in 1986 to help K–12 schools, as well as colleges and universities, identify ways to more fully integrate gender and multicultural diversity into their curriculum and to change classroom climates (see www.nationalseedproject.org).

She co-directed the SEED Project with Emily Style for its first 28 years. McIntosh has noted that self-knowledge is crucial for teachers (McIntosh, 2015b). Thus, a key component of the SEED seminars involves *serial testimony* in which participants speak based on their experiences and hear from others in their own words. By 2017, the SEED Project, through national and branch programs, had trained over 2,600 SEED leaders (National SEED Project, n.d.). McIntosh has identified co-leading the National SEED Project as her "main public action project" (McIntosh, 2015a, p. 21).

Other Work

McIntosh's papers on feelings of fraudulence (e.g. McIntosh, 1985) have found ready adherents among academic audiences. In addition, her interactive phases of curricular and personal revision have influenced curricular and organizational changes by many working in academia (McIntosh, 1983).

Legacy of Her Work

McIntosh's writing and training on White privilege remain influential. Perhaps it is not surprising that, although McIntosh's work has been widely applauded by many, her discussion of White privilege and her desire to shape the educational experience have found critics. Even some authors who recognize her many contributions have expressed concern that her discussions, and those who use her work, do not go quite far enough in combating racism. However, McIntosh's conceptualization of privilege has served as the foundation for numerous papers and programs addressing this issue, and for decades she has demonstrated a commitment to using her own privilege in efforts to weaken oppressive privilege systems. In 2012, a special issue of the *Journal of Social Issues* was devoted to examining privilege, with articles throughout noting the impact of her 1988 landmark examination of this topic. McIntosh (2012) herself provided the final commentary and noted the need for further efforts in this arena. McIntosh continues her important work, and her influence continues to shape teaching, research, public discourse, and activism.

See Also

Personality and Prejudice

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Root, Maria Primitiva Paz

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Maria P. P. Root has been a leading figure in the development of affirmative models of identity development for mixed-race people. She was born in Manila, the Philippines, daughter of a Filipina mother and a Euro-American father, and immigrated to the United States when she was three years old. The simple facts of the circumstances of her birth became the foundation for a distinguished career in which Dr. Root became the leading psychological scholar of the life experiences of people of mixed-race heritage. Dr. Root's work exemplified a capacity for independent scholarship; most of her award-winning work and writing was produced while she was a private practitioner. It also exemplified the concept that one's personal experiences can become the basis for the development of theory that looks outside the box of accepted wisdom to shed new light on previously poorly-understood topics. Before Dr. Root's work, racially mixed people's experiences were often stigmatized, both by the larger culture and by psychology. As a result of her scholarship, the lives, not only of racially mixed people, but of all individuals for whom intersectionalities play an important part in identity, have become illuminated. Dr. Root was a trainer, an educator, and a public speaker on the topics of multiracial families, multiracial identity, cultural competence, trauma, work place harassment, and disordered eating. She lectured around the world, including New Zealand, England, the Netherlands, Canada, and the United States.

After receiving her B.A. from the University of California at Riverside in 1977 Dr. Root attended Claremont University, where she received a master's degree in cognitive psychology in 1979. She then entered the clinical psychology doctoral program at the University of Washington, from which she received her PhD in 1983. Her initial area of both clinical and research focus was the topic of disordered eating. Her first publication, *Bulimia: A Systems Approach to Treatment,* co-authored with her dissertation adviser, the late William Friedrich, and her colleague Patricia Fallon, was the first systemic application of a feminist family systems model to the experiences of bulimic women. Root and Fallon were also among the first researchers to empirically identify a relationship between a history of childhood interpersonal trauma, particularly childhood sexual abuse, and the

development of disordered eating, which they conceptualized as a coping strategy for experiencing control in a violated body. Dr. Root also served as co-editor (with this author) of a foundational volume in the field of feminist therapy, *Diversity and complexity in feminist therapy*, published in 1990. Dr. Root's chapter on what she labeled "insidious traumatization" (Root, 1992) presaged the development of the construct of micro-aggression; she was the first psychological scholar to describe the linkage between target group membership and chronic exposure to low-level traumatic stressors.

After receiving her doctorate, Dr. Root opened a clinical practice focused on adult and adolescent treatment which included working with families and couples. The focuses of that practice included culturally competent practice, life transition issues, trauma, ethnic and racial identity, workplace stress and harassment, and disordered eating.

Additionally, Dr. Root offered psychological evaluations, working as a consultant to several law enforcement departments, with a special focus on screening potential law officers around issues of bias. She also provided expert witness services in forensic settings performing evaluations and offering expert testimony in matters that required cultural competence and/or knowledge of racism or ethnocentrism.

In 1990, Dr. Root spent a year as a visiting scholar at the University of Hawai'i-Manoa. She then served on the faculty of the Department of Ethnic Studies of the University of Washington before returning to her full-time private practice of psychology, although she continued to conduct research as an independent scholar.

In 1992, Dr. Root published the first of her many ground-breaking works in the field of mixed-race identity, *Racially Mixed People in America*. In this book, she began to develop an affirmative narrative for a group of people who had previously been either exoticized or stigmatized because their existence challenged dominant cultural narratives of race as fixed and invariant, and of romantic and familiar relationships across racial borders as transgressive. Root up-ended biased perspectives that portrayed mixed-raced people as marginal, tragic, or pathological. In place of these flawed and racist conceptualizations, she pioneered her Ecological Framework for Identity Development, which argued that for mixed-race people, identity development is neither linear or the same for each mixed-race individual. Her paradigm, which can be found at http://drmariaroot.com/doc/EcologicalFramework.pdf, nested identity development within multiple larger systemic contexts, including regional and generational histories of race and ethnic relationships, family systems, sexual orientation, gender, and social class. Her model was the first truly intersectional paradigm for identity development, proposed decades before the construct of intersectionality became popular, evidence of the visionary nature of her work. Not only did it create an affirmative norm for the experiences of people of mixed heritage, this model also inspired other scholars and theorists of intersectionality.

An additional striking contribution that Root made to theories of mixed-race identity development was her proposal that there are multiple, equally valid trajectories for identity development for people who have intersectional identities. This idea arose from her innovative research on biracial siblings (Root, 1998). Root's provocative finding was that within the same family, different siblings had significantly different trajectories in the development of their racial identities. These five trajectories were: (1) accept identity as assigned by society; (2) identify monoracially (consistent with the rule of hypodescent); (3) identify with multiple racial groups; (4) identify as a new racial group, and (5) create a

symbolic racial identity that is unyoked from phenotype or dominant cultural narratives. By identifying all of these trajectories as equally valid and non-pathological experiences of identity for mixed-race people, Root subverted stereotype and made transparent the diversity and complexity of the lives and identities of people of mixed race.

Root's work has had influence beyond the field of cultural studies, with significant impact on the development of feminist therapy theory and practice and trauma psychology. Because her scholarship was intentionally intersectional and multidisciplinary almost from its inception, her work has inspired scholars and researchers inquiring into the ways in which multiple and intersecting identities affect individuals' understandings of themselves and their relationships to the larger social contexts in which they reside.

Dr. Root retired from the field of psychology in 2014. She currently has a career as a distinguished ceramics and tile artist, a field in which she also wins awards. She lives in Seattle with her husband, Bruce, two cats, and several turtles.

See Also

Biracial and Multiracial Individuals
Eating Disorders

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Sue, Derald Wing

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Early Experiences and Personal Life

Sue was born in Portland, Oregon, and was the second oldest of six children in a working-class Chinese American family (APA, 2013; Munsey 2006; Parham, 2011). When he was a child, his family moved from Portland's Chinatown to a predominantly White suburb outside of the city. In this neighborhood, his White peers insulted and harassed his brothers and him due to their racial background, the language they spoke at home, and their smaller physical frames (Parham, 2011). His older brother David often had to physically fight with other boys, in order to protect Sue and his younger brother Stanley (Parham, 2011). His teachers and counselors stereotyped him as being good at math and sciences, which Sue viewed as bothersome and insensitive (Parham, 2011). As adolescents, Sue and his brothers had regular discussions on racism, which spurred their interest in psychology and human motivation. Four of the Sue brothers later became psychologists (APA 2013; Munsey, 2006; Parham, 2011).

In the 1970s, Sue met Paulina Wee, a Chinese American student who was completing her teaching credential at University of California Berkeley. Paulina was proud of her racial and ethnic heritage and taught Sue to embrace his cultural identity. They married and raised two children – Derald Paul and Marissa. He has two granddaughters – Carolyn and Juliette.

Career Trajectory

Sue earned his Bachelor of Science degree from Oregon State University in 1965; his Masters of Arts degree in Counseling Psychology from the University of Oregon in 1967; and his PhD in Counseling Psychology also from the University of Oregon in 1969. As a student, Sue noticed that his training relied on the assumptions that all people had goals of independence and individuality, which was at odds with the collectivist goals of his

Chinese upbringing (APA, 2013; Munsey, 2006). He also realized that the field of psychology reflected a bias in favor of White, European culture and did not account for the possibility of cultural differences (Parham, 2011). Because he did not have any mentors who were interested in topics related to multiculturalism, he turned to writings of civil rights activists (Munsey, 2006; Parham, 2011) like Dr. Martin Luther King, Malcolm X, Huey Newton, H. Rap Brown, and Cesar Chavez (Parham, 2011).

In the early 1970s, Sue worked as a counseling psychologist at the Counseling Center of the University of California, Berkeley. He was happy that there was a larger Asian American population on campus, which was much different than his previous experiences in Oregon. He related to many of the Asian American clients with whom he worked in psychotherapy, and he was well known by the Asian American students on campus. He admitted that while he enjoyed counseling, he found the process to be slow. And because he wanted to make change on societal levels, he decided to become a researcher and enter academia. He held positions at Santa Clara University, California State University, Hayward, and Alliant University. He started his position at Teachers College – Columbia University in 2001, where he has been ever since.

At the age of 31, Sue became the youngest journal editor of the *Journal of Counseling and Development* – the flagship journal of the American Counseling Association (formerly known as the American College Personnel Association). He experienced a great amount of backlash during this time – particularly from members who believed that his focus on social justice issues was controversial and overly political (APA, 2013; Parham, 2011). Although there were many members who requested his resignation as editor of the journal, Sue continued his term. However, because he experienced significant distress from his naysayers, he decided against completing a second term.

In 1972, Sue co-founded the Asian American Psychological Association (AAPA) with his brother Stanley, and he served as the founding president. Because of the lack of visibility of Asian Americans in psychology, they formed the AAPA to advocate for the mental health needs of Asian Americans through research, practice, education, and policy. The organization began with a handful of active members in California and grew to a national organization with over 850 members as of 2017 (AAPA, 2017).

Sue published many books, including his first text *The Psychology of Personality* (Sue, 1970), which was followed by *Introductory Psychology* – a co-authored book with Dr. Marvin Schroth (Schroth & Sue, 1976). In 1981, he co-authored Counseling the Culturally Diverse with his brother Dr. David Sue (Sue & Sue, 2015); now in its seventh edition, it has become his most frequently cited and best-known text. In 1996, he co-authored *A Theory of Multicultural Counseling and Therapy* with his colleagues Drs. Allen Ivey and Paul Pedersen (Sue, Ivey, & Pedersen, 1996). Finally, in 2004, with his two brothers David and Stanley, he co-authored *Understanding Abnormal Behavior,* a book that is now in its eleventh edition (Sue, Sue, & Sue, 2015).

Contributions to Multicultural Counseling

The bulk of Sue's research indicated that the techniques and knowledge meant to support psychological health are not universal, but must be understood through cultural lenses.

In the 1970s, Sue's initial research focused on the relationship between Chinese American culture and mental health needs and later expanded to include other Asian Americans. In the 1980s and 1990s, Sue addressed the cultural barriers to providing appropriate mental health services to people of color and advocated for greater cultural competence in counseling. Sue's earliest theoretical models described a tripartite model of multicultural competence – knowledge, awareness, and skills. Sue and many colleagues advocated for standards for competencies and skills in multicultural counseling, which eventually were adopted by the American Counseling Association (Sue, Arredondo, & McDavis, 1992) and the American Psychological Association (2003).

Contributions to Anti-Racism Research

Sue's two major contributions to anti-racism research are his work on microaggressions and racial discourses (APA, 2013; Parham, 2011). Because the US civil rights movement changed the way that racism is expressed and recognized, he proposed that racism manifests differently and that people have difficulty discussing issues related to race.

Microaggressions

Sue is considered the most prolific and influential researcher on microaggressions, or subtle forms of discrimination. Based on the initial coining of the term by psychiatrist Chester Pierce in 1970, Sue defined microaggressions as banal individual-level interactions which subtly invalidate, subtly demean, or explicitly insult individuals because of their social group membership. In his 2007 paper, *Racial Microaggressions in Everyday Life: Implications for Clinical Practice*, Sue and colleagues proposed a classification system for microaggressions. This taxonomy was a significant advance because it allowed clinicians to recognize microaggressive experiences within psychotherapy and in everyday life (Sue et al., 2007). Within 10 years, there were over 150 publications written on racial microaggressions (APA, n.d), with a comparable number of papers written on microaggressions toward women, people with disabilities, religious minority groups, and lesbian, gay, bisexual, transgender, and queer people.

Racial Discourses

During the mid-1990s and through the 2000s, Sue began to suggest best practices for discussing racial discrimination and how to support organizational changes toward multicultural inclusion. He described how racism is central to Whiteness and to the history of the United States, resulting in his book *Overcoming Our Racism: The Journey to Liberation* (Sue, 2003). He also noticed that discussing race relations in the United States is emotionally and psychologically taxing because the topic violates several rules of social etiquette. His research team began to examine difficult dialogues on race, which led to his most recent text – *Race Talk and the Conspiracy of Silence: Understanding and Facilitating Difficult Dialogues on Race* (Sue, 2015).

Criticisms

In his early career, Sue encountered resistance from psychologists who argued his research on cultural competency, racism, and social justice was irrational and based on his personal political agenda (APA, 2013; Munsey, 2006). Other researchers criticized Sue's theories because it is seemingly impossible to scientifically prove or measure (Sue, 2017; Sue, Capodilupo, Nadal, & Torino, 2008). However, Sue argued that the lack of falsifiability has not prevented many in psychology from accepting other theories (e.g. psychodynamic theories by Freud) and that denying the reality of systemic and interpersonal racism is a microaggression in itself (Sue et al., 2008).

Some journalists and psychologists have critiqued microaggressions theory as being merely trivial slights rather than more harmful forms of racism (Sue et al., 2008). Some have claimed that people who experience microaggressions are overly sensitive to simple rudeness and that microaggression theorists encourage a culture of self-victimization in order to manipulate benefits from others (Sue et al., 2008). Sue has defended that while some microaggressive incidents may be not cause great harm in any singular instance, it is the chronic near-constant experience of these acts that lead to psychological harm (Sue et al., 2008). Further, Sue has claimed that acknowledging microaggressions does not foster a sense of psychological weakness but actually demonstrates the psychological resilience required to tolerate such unending discrimination (Sue et al., 2008).

Future Plans

While Sue's extensive research and advocacy on multicultural competence and microaggressions has resulted in increased training, education, and awareness of social justice issues, Sue has cited many important directions for the field of psychology. First, mental health professionals must learn to identify and address their biases that they hold against other groups, in order to foster more meaningful relationships. Second, institutions should recognize how they perpetuate systemic discrimination in their practices and instill policy changes to be more inclusive of all cultural groups. Finally, the field of psychology must foster social justice as a core concern because social injustices affect all aspects of an individual's mental health.

See Also

Biculturalism
Cultural Specific Therapies

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Triandis, Harry C

Sharon G. Goto and Kevin Wei

Pomona College

Dr. Harry C. Triandis, baptized Charalambos Theodor, was born in Patras, Greece, on October 16, 1926. As described in his autobiography (Triandis, 2015), his great grandfather was Nicholaos Triandis who established the Triandis and Sons company. This prominent family is well documented in "The History of Patras." Harry spent a happy childhood with French and German governesses in Thessaloniki, Chalandri, and Athens. He attended a French international high school until the German occupation of Athens when his family moved to the island of Corfu, where he spent his formative years. Here, he learned the value of austerity and always thereafter appreciated the saying, "A person who has few needs cannot have a greater good." Of his high school studies, he writes "It was fun studying physics, psychology, politics, astronomy, and many other subjects. I liked psychology especially, but I did not think that I could make a living in that field." After the war, the family returned to Athens and he continued his studies in engineering at Athens Polytechnic, where he also honed his lifelong appreciation of music. In 1948, he attended McGill University in Canada and then accepted his first job at Proctor and Gamble. As he worked, he received a Master of Commerce degree (MBA) from the University of Toronto, where he took a "Human Relations in Industry" course taught by Joyner, a student of Carl Rogers. Encouraged by psychologists including Lilian Gilbreth, he pursued and completed his doctoral studies with William Lambert in three years at Cornell University. During this time, his interest in cross-cultural comparisons emerged through working with Charles Osgood on the structure of affective meaning in Greece (Triandis & Osgood, 1958) and investigating the universal structure of emotions (Triandis & Lambert, 1958). He wrote a 500-page dissertation on communication that resulted in several publications in the *Journal of Applied Psychology* and *Human Relations*. In 1958, upon the recommendation of Osgood, he was offered a job at the University of Illinois, sight unseen. Dr. Triandis accepted, happily spending the rest of his career in Illinois, despite several competing offers from other universities. There, he lived with his wife, Pola, until retirement. Dr. Triandis passed away in 2019. They have a daughter, Louisa, and two grandchildren.

As in all things, Harry Triandis was thorough, thoughtful, and prepared. His professional accomplishments were many as detailed in his self-published obituary (Triandis, 2015), partially quoted here:

> He came to Illinois in 1958, and was especially devoted to WILL [*sic* local station] and the Krannert Center for the Performing Arts because he loved classical music. He became professor emeritus of psychology at the University of Illinois in 1997. He was named a University of Illinois Scholar in 1987. His field of specialization was cross-cultural psychology. After publishing the 6-volume Handbook of Cross-Cultural Psychology, some of his colleagues named him "father" of this new branch of psychology. His research required collaboration with colleagues from different cultures so he circled the globe four times and spent many months in other cultures. He lectured in about 40 countries on all inhabited continents.

He was a fellow of the American Association for the Advancement of Science, five divisions of the American Psychological Association (APA), a fellow of the Association for Psychological Science (APS), and a fellow of the International Association for Cross-Cultural Psychology, which administers the Harry and Pola Triandis Doctoral Thesis Award that is given every two years for the best dissertation in the field. He received awards from the Interamerican Society of Psychology, from the APA (the Centennial Citation, "for significant contribution to the establishment of Cross-Cultural Psychology as a distinct discipline," and the Distinguished Contributions to International Psychology Award). The APS named him James Cattell Fellow. The International Division of the APA named him Distinguished International Psychologist of the Year 2002. The Society for the Psychological Study of Social Issues gave him the Klineberg Award. The Academy of Management gave him the Eminent Scholar in International Management Award. The Federation of Associations in the Behavioral and Brain Sciences placed him on its list of honored scientists, which listed less than 100 psychologists. He was named Honorary International Fellow of the Center for Applied Cross-Cultural Research, Victoria University, Wellington, New Zealand in 2011. The International Academy for Intercultural Research gave him its Lifetime Contributions Award in Taiwan in 2004; the Society for Personality and Social Psychology gave him its Career Contributions Award in 2012 in San Diego, California.

He was a Ford Foundation faculty fellow (1964–1965), fellow at the Center of International Studies at Cornell University (1968–1969), a Guggenheim fellow (1972–1973), and a distinguished Fulbright professor to India (1983).

He was president of six Associations or Societies of Psychology. The Interamerican Society of Psychology, the International Association for Cross-Cultural Psychology, the Society for Personality and Social Psychology, the Society for the Psychological Study of Social Issues, the Society for Cross-Cultural Research, and the International Association of Applied Psychology.

After retirement in 1997, he continued publishing. His 2009 book *Fooling Ourselves: Self-Deception in Politics, Religion, and Terrorism* received the William James Award from the General Psychology division of the APA. The third edition of Jain, Triandis, and Weick, *Managing Research, Development and Innovation: Managing the Unmanageable*, was published in 2010. Bhagat, Triandis, and McDevitt, *Managing Global Organizations,*

appeared in 2013. His books were translated into Chinese, Farsi, German, Japanese, Russian, and Spanish. His publications span 60 years (1955–2015).

Beyond his professional accomplishments shines Harry Triandis' impeccable humanity. Michael Bond, another giant in the field of Cross-Cultural Psychology, wrote of Dr. Triandis, "After more than 40 years since we met, and across countless exchanges, Harry Triandis is still my hero; he has never disappointed me, nor I expect the many others whose lives and careers he has touched in his way, while on his way."

A brief synopsis of his majors works follows:

The Self

The 1989 paper "The Self and Social Behavior in Differing Cultural Contexts" explores how the identity of the self influences the way an individual interacts with their environment. Triandis identifies three different selves (private, public, and collective), whose complexities are shaped by cultural variables. The more complex the self, the higher probability it will be sampled, leading to behavior that is influenced by the sampled self. Triandis goes on to discuss how different aspects of a culture, such as individualism/collectivism, complexity, and tightness/looseness, dictate how the self is developed. The effect of ingroup/outgroup processes are also analyzed, showing that social behavior is more communal with an ingroup member, and that these ingroup/outgroup distinctions are exhibited more strongly in collectivist cultures. This publication was a pillar for examining the link between an individual's culture and their social behavior. The development of cultural aspects of the self remains a cornerstone for understanding cultural difference such as interdependent and independent self-construal (Markus & Kitayama, 1991).

Horizonal/Vertical Individualism/Collectivism

In Triandis (1995), he outlined the differences between individualistic and collectivist orientations where the former view themselves as independent in goals, needs, and desires from important groups, whereas the latter view themselves as part of and influenced by important groups like communities, families, workgroups, and nations. In 1998, Triandis and his former student, Michelle Gelfand, published an influential paper defining and empirically supporting a dichotomy within both individualism and collectivism. Triandis and Gelfand, in a four-part study, made their case for individualism and collectivism to be conceptually divided by their emphasis on horizontal or vertical social relationships. Horizontal individualism is characterized by a desire to be distinct from groups, while vertical individualism often relates to one's desired social status. In horizontal collectivism, there is an emphasis on one's common goals and similarities with each other, while in vertical collectivism the emphasis is on the goals of the ingroup. The four-part study included data collection in Korea, multi method data measurement and analysis, as well as comparisons of horizontal and vertical individualism and collectivism to previous work on components of these constructs. Triandis and Gelfand were able to not only demonstrate the reliability of horizontal and vertical measures of individualism and collectivism, but also showed the use of these conceptualizations in the exploration of previously unstudied aspects of culture and social identity.

Interpersonal Behavior

Triandis is well known for his pioneering work on his Theory of Interpersonal Behavior. He recognized that social factors and emotions played a key role in forming intentions and behaviors. He also noted the importance of past behavior on that of the present. In any situation, behavior, according to Triandis, is a function of one's intentions, their habitual responses, and the situational factors around them. Triandis conceptualizes intent as a sum of a number of affective, social, and attitudinal influences. Outside of its main role in defining social behavior, Triandis' theory has been used as framework for empirical analysis of various components related to social situations.

Culture Assimilator

Triandis, in the 1960s, was part of a team at the University of Illinois that was tasked by the Office of Naval Research with developing a training method that would "make every sailor an ambassador of the United States." This project produced what came to be known as culture assimilators (Fiedler, Mitchell, & Triandis, 1971). Triandis' previous work on culture and social behavior was pivotal in developing this program. Trainees are presented with situations where viewpoints between two different cultures do not align, and then asked to select explanations for why there is a problem. By receiving extensive feedback regarding culture theory (individualism vs. collectivism), trainees are able to think more similarly to individuals from another culture. The culture assimilators are able to train individuals to have better experiences in other cultures versus individuals who do not receive such training.

Fooling Ourselves

One of Triandis' more recent works is his book titled *Fooling Ourselves: Self-Deception in Politics, Religion, and Terrorism*. Triandis demonstrates the universality of self-deception, and how it can create harmful effects for both the individual and those around them. The role of culture in shaping this self-deception is a key point, particularly the roles of individualism, collectivism, and religion. Triandis also notes the tendency for people to deceive themselves with simple explanations about the world, rather than complex ones. However, the book highlights a paradox in self-deception, showing that people with religious rituals and beliefs are often happier than those without such ideas. Triandis goes on to explain how individuals can identify their own self-deceptions, and how to consider multiple dimensions of thought when drawing conclusions about the world.

See Also

Allocentrism vs. Idiocentrism
Culture and Personality
Individualism vs. Collectivism

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Trimble, Joseph Everett

J. Douglas McDonald

University of North Dakota

The man known to legions of colleagues, students, and early career psychologists of color as "Uncle Joe" began his professional journey in 1969 by graduating with his doctorate in social psychology from the University of Oklahoma. Not surprisingly, his doctoral dissertation focused on the effects of socio-economic strata on American Indian men and the challenges they faced. He then completing postdoctoral fellowship research and training in mass communications, computer science, and cross-cultural counseling and learning. He began his academic career at Oklahoma City University, receiving tenured status in 1972. In 1975 he left the Great Plains for the Great Northwest with research associate postings at Battelle Human Affairs Research Centers, Portland State University, and the University of Oregon health sciences Center focusing on aging, human ecology, and social justice and change (Trimble & Medicine, 1976; Trimble, 1976). He then joined the faculty at Western Washington University in Bellingham Washington, where he remains as distinguished university professor, professor of psychology, focusing on a wide range of cross-cultural research and clinical issues (Trimble 1977; Trimble 1982; Trimble, 2005), including ethical consideration (Trimble & Fischer, 2005). While serving at WWU in these capacities, as well as developing and directing the center for cross-cultural research, Dr. Trimble also worked and collaborated with both University of Alaska campuses, dozens of Northwest area, and isolated Alaskan native communities researching the disastrous effects of poverty, alcoholism, and cross-cultural oppression (Trimble et al., 2014). He also served as fellow and visiting professor at Harvard University's Radcliffe Institute for Advanced Study in 2001.

Awards and Honors

His list of professional awards is extensive, including the Henry Tomes Award for Distinguished Contributions to the Advancement of Ethnic Minority Psychology from the American Psychological Association (APA), the International Lifetime Achievement

Award, Ontario Institute for Studies in Education, the lifetime achievement award from the APA Division 45, and the Janet E. Helms Award for Mentoring and Scholarship in Professional Psychology, to name a few.

Service

Dr. Trimble has generously donated his time and expertise to regional, community, and tribal organizations as well. His community service experiences demonstrate a broad range of compassionate and professional involvement for such groups as the Urban League of Oklahoma City, Oklahoma Indian Affairs Commission, multiple research institutional review boards, membership of over 20 community and professional governance and advisory boards and committees, and technical advisorships to an array of community and organizational units dedicated to social justice and community service, particularly those in Indian country.

Scholarly Works and Teaching

Dr. Trimble's formidable vita reflects his popularity as a speaker on areas of his considerable expertise, as well as his status as a respected statesman for American Indian and other social justice causes. Over 20 pages of selected entries documenting panel discussions, paper presentations, and most notably keynote addresses, speak to the popularity and respect he has earned amongst his peers during his career. Similarly, his selected listing of peer-reviewed publications, mostly relating to American Indian mental health and education, portray an impressive career of scholarly productivity. As of this writing, he has first authored over 80 peer-reviewed papers, 72 book chapters, and written or edited 23 books. He has also served as a reviewer or editor for 32 peer-reviewed professional journals. His words, thankfully recorded in both written and more lately digital/video archives (Trimble, 2017) have supported countless current and former students (including, proudly, this author), tribal members, and colleagues

Dr. Trimble has taught courses ranging from introduction to psychology, statistics, adolescent psychology, gender culture, and emotion, as well as 12 other courses across multiple university settings. He has chaired over 35 master's thesis committees, while serving on that many more as a member, and over a dozen doctoral dissertation committees. His support and mentoring of students of color, particularly American Indian graduate students, is commonly known.

Leadership

Dr. Trimble has often suggested (typically to, or about others) that the best measure of one's professional performance, as well as the level of respect shown from peers, is best represented in how often they have been elected or appointed to positions of leadership in their field. In this regard, he has certainly led by example. His governance and leadership in the

American APA is as lengthy as it is impressive. He holds fellow status in three APA divisions, serving on the Council of Representatives for two of them. He served on the Committee on Ethnic Minority Affairs (CEMA), the Board of Ethnic Minority Affairs, as well as four APA task forces. He was president of APA Division 45, and chaired five of that division's committees over the years. He chaired the APA Office of Ethnic Minority Affairs Committee on Ethnic Minority Recruitment and Retention and Training, and co-authored APA's Multicultural Guidelines. His various other professional committee and board leadership roles are simply too numerous to mention.

Legacy

As incredible, and even overwhelming, as Dr. Trimble's accomplishments are, they insufficiently herald the qualities and content of his character, spirit, and reputation. The word *Wawokiya* translates literally as "Helper" in Lakota. As with many translated American Indian words, the literal translation insufficiently conveys the entirety of its meaning. A true Wawokiya is honorable. They are selfless and humble. They are also reliable and powerful. The Wawokiya is typically a leader, a teacher, and a loyal friend. Dr. Trimble is the finest example of a Wawokiya many of his friends, colleagues, students, and relatives have ever known.

Personal Life

Dr. Trimble is a distinguished professor of psychology at Western Washington University in Bellingham, Washington. He resides there with his wife, Molly, where they have raised their three daughters – all distinguished professionals in their areas of endeavor. Dr. Trimble is an enthusiastic horticulturalist and fisherman. He was one of the founders of the Society of Indian psychologists (SIP), and recently received the American Psychological Foundation's Gold Medal Award for Lifetime Achievement in the Public Interest. His enlightening and entertaining TED talk is referenced below. In this author's estimation and hope – yet possibly not Molly's – he will probably never retire.

See Also

Individualism vs. Collectivism
Joseph Trimble
Personality in Culture

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White, Joseph L

Adisa Ajamu

University of California, Irvine

Joseph L. White was born in Lincoln, Nebraska, on December 19, 1932, and was reared in Minneapolis. He eventually migrated west where he eventually enrolled at San Francisco State College in 1950, earning both his bachelor's and master's degrees, serving two stints in the Army, before subsequently attending Michigan State University to pursue a doctorate in clinical psychology. He took a PhD in clinical psychology in 1961, becoming the first African American to receive a doctorate in clinical psychology from Michigan State, and at the time becoming only the fifth African American in the country to hold a doctorate in clinical psychology.

Throughout his long and distinguished career, he received numerous awards and honors for his contributions to psychology in the service of social justice, for his work challenging erroneous and harmful psychological paradigms and understandings of ethnic minorities, for his work as a mentor and for his tireless efforts in advancing opportunities for African Americans and other ethnic minorities. Among those distinctions were: The Citation of Achievement in Psychology and Community Service presented by President Bill Clinton in 1994; the Janet E. Helms Award for mentoring and scholarship in psychology and education presented the annual Winter Roundtable on Cultural Psychology and Education at Columbia University in 2003; the University of California, Irvine Alumni Association's Extraordinarius Award in 2004.

In 2007 Joseph White was awarded an honorary Doctor of Laws degree from the University of Minnesota in 2007, the highest award conferred by the University of Minnesota, recognizing individuals who have achieved acknowledged eminence in cultural affairs, in public affairs, or in a field of knowledge and scholarship. A year later, he was acknowledged as the Alumnus of the Year from San Francisco State University in 2008. In 2015 he was awarded a Presidential Citation from the American Psychological Association for his distinguished work as a psychologist committed to social justice and equality. And in April 2017, Dr. White received the California Psychological Association's Lifetime Achievement Award.

He was the author and/or coauthor several foundational essays and books including: "Towards a Black Psychology" in *Ebony* magazine (1970), which is considered the seminal essay in the founding of the discipline of Black Psychology; *The Psychology of Blacks: An African American Perspective* (1984, 1990); *The Troubled Adolescent* (1989); *Black Man Emerging: Facing the Past and Seizing the Future in America* (1998) and the coauthor of *The Psychology of Blacks: An African Centered Perspective* with Thomas Parham and Adisa Ajamu (1999, 3rd ed.); *The Psychology of Blacks: Centering Our Perspective in an African Consciousness* with Thomas Parham and Adisa Ajamu (2011, 4th ed.) and coeditor with Michael Connors on *Black Fathers: An Invisible Presence in America* (2006).

Joe White: Psychologist as Social Justice Activist

Upon receiving his doctorate, Joseph White served as faculty and administration at Long Beach State University and later San Francisco College, his alma mater, and before eventually joining the University of California, Irvine. Early on in his academic career he would come to be known as one of the drum majors for social justice and trailblazer. At Long Beach State, he founded the Educational Opportunity Program (EOP) at CSULB in 1967, a model that would eventually be replicated throughout California and the United States, allowing tens of thousands of low-income minority students to enter and graduate from public and private colleges and universities.

At San Francisco State, as a professor and the dean of undergraduate studies he would stand with students during the Strike of 1968, which eventually produced the first Black Studies program in the country under the direction of Dr. Nathan Hare. In 1969, he was recruited to the University of California, Irvine, by founding Chancellor Daniel G. Aldrich Jr. as a professor in the Program in Comparative Culture and as director of the Black Studies Program. He would remain there until retirement in 1994. At UCI, his work continued with the founding UCI's first Counseling Center, the Cross-Cultural Center in 1974, the first of its kind in the nation, and work closely with the Speaker of the House of the California State Assembly, the Honorable Willie Brown to help get UCI's Medical School established.

Between his time at SFSU and his arrival at UCI he would also make two important contributions that would profoundly alter the landscape in the social sciences and the humanities and recalibrate the nation's trajectory and understanding of the relationship between social science, social justice, equality and public health. The first was his role in founding the National Association of Black Psychologists in 1968. The second was the seminal 1970 article published in *Ebony* magazine, asserting the need for new paradigms of psychological inquiry and explication to be rooted in the Black cultural experience, while noting that traditional psychological paradigms when applied to African Americans resulted in deficit and inferiority-based theories, which were inadequate in understanding the Black psychological experience. "Toward a Black Psychology" remains one of the most important essays is in the field of Black Psychology and the discipline of Black Studies.

Toward A Black Psychology: The Birth of ABPSI

In September of 1968, at the height of the Black Power movement, with Black America still reeling from the pain of the assassination of Dr. Martin Luther King and racial tensions over equal rights hanging ominously over the country, approximately 200 Black psychologists descended upon San Francisco for the American Psychological Association's National Convention in an effort to make their voices and that of Black America heard, once again.

There had been numerous efforts across the decades to get the APA to move towards a more just and egalitarian association, one that was fully welcoming to African American psychologists. As late as 1963, the Committee on Equality of Opportunity in Psychology (CEOP) an ad hoc of APA's Division 9, The Society for the Psychological Study of Social Issues (SPSSI) was "established (1) to explore the question of equal opportunity hiring practices relative to Black psychologists in professional and academic positions, (2) examine recruiting and selection of students for training in psychology, and (3) determine steps that may provide training and exchange opportunities for teachers and scholars at Black colleges and universities."

However, like previous efforts, leadership failed to pursue the concerns aggressively. By 1968, after years of delays and indifference on the part of APA, Black psychologists decided to take the matter into their own hands and, during the convention, several Black psychologists decided to sequester themselves in a room and lay out the preliminary framework for what would become the Association of Black Psychologists. Joseph White one of the members in the room, recalls the experience this way:

> When we got to San Francisco it was like a conscientiousness floating around ... people started talking in the hallways and then someone said, let's me in my room or Bob Williams room ... I can't remember, but the central topics of the meeting were plain and simple: We were dissatisfied with Psychology's exploitations and the white definitions for behavior that placed Black folks in a negative light. We were determined to construct some new definitions and terminologies ... We were mainly dissatisfied with APA because of the lack of graduate students in the nation's psychology programs ... also, the APA had taken no stand on the social revolution that was going on...all around them. *(Guthrie, 1998)*

In September 1968, emerging out of the need to respond to the "social revolution" going on around them and the responsibility those Black psychologists felt for the providing a better psychological frame to offer Black people hope, the Association of Black Psychologists was born and Joe White was among its founders. Charles Thomas and Robert Green were its inaugural co-chairs along with Earnestine Thomas, who served as the inaugural secretary. The association remains a leading voice in the psychological well-being and the mental liberation of Black people.

In the late 1960s, Joe White, standing at the crossroads between a Civil Rights Movement on the decline and a Black Power movement in ascendency, emerged as a powerful defiant voice of change and his ideas would help birth a discipline, providing psychological breathing space for Black people to develop, and, in the process, help usher in a fundamental shift in how ethnic, racial, gender, and sexual minorities were viewed, understood, and treated

in Western psychology. The reverberations of his impact can be felt in psychology, in public health, in Black Studies, in contemporary social justice movements for ethnic, racial, gender, and sexual minorities, the thousands of students who benefited from the creation of EOP and in the hundreds of students he mentored in his five-decade career in a process he affectionately called The Freedom Train.

See Also

Culture and Personality
Janet Helms
Kenneth and Mamie Clark
Personality and Prejudice
Reginald Jones
Universality vs. Cultural Specificity of Personality
VREG (Visible Racial/Ethnic Group)

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Jones, James M

Jeffery Scott Mio

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James M. Jones is a leading voice in psychology on the issue of race, racism, prejudice, and discrimination. His book, *Prejudice and Racism* (Jones, 1972, 1997), is a classic in the field and has been held in high esteem by researchers in the field. He has been identified as one of the most influential Black psychologists in the field (White, Williams, & Majzler, 2011; Williams, 2008).

Early Life

James M. Jones was born in 1941 in Detroit, MI, to Arthur McCoy Jones and Eliza Marcella Hayes Jones. He is the elder of two children, with his sister, Judith Elizabeth Jones (Stacey) being born in 1944 (Jones, 2008). By the time his sister was born, the Jones family had moved from Detroit, MI, to Elyria, OH, where Jones attended Hamilton Elementary School, Franklin Junior High School, and Elyria High School.

   While Jones was raised in a housing project that was predominantly Black (95%), he did not personally feel he experienced overt racism among his mostly White classmates. Part of this was due to his successful academic endeavors, and part of this was due to his natural leadership tendencies, particularly in athletics. He was captain of his Little League baseball team and also his high school golf and basketball teams, along with being president of his Student Council. However, he was aware of racial inequities, such as not being able to bowl at the local bowling alley or not being able to rent a cabin on the lake during the summer. Such inequities gnawed at him, which motivated him to explore wider issues of racism.

Academic Influences

Dr. Jones graduated from Oberlin College in Ohio in 1963. There was a small Black student body there, but he did not really begin thinking of race relations or racism until after he graduated from college. While at Oberlin, he worked in Norman Henderson's behavioral

genetics lab. This experience introduced him to scientific psychology, but also confirmed that he was more interested in people than rats. When he traveled in Europe and also joined the workforce, he began thinking of race relations more and more. He went to college with the famous Kenneth B. Clark's daughter (Kate), and Clark became a role model after whom Jones wanted to emulate. He received his master's degree in psychology from Temple University in 1967, then he became the first Black student in Yale's PhD program in social psychology, graduating from Yale in 1970. By then, he had married his college sweetheart, Olaive Burrowes, and they had Shelly, their first of two daughters. Jones reported that his professors and classmates were very supportive, and he has remained friends with many of them throughout the years. In graduate school, Chuck Kiesler and Bob Abelson were mentors. Kiesler invited him to write a book on prejudice, which became his seminal work of *Prejudice and Racism,* published in 1972 and a revised second edition in 1997. This invitation came when he was in only his third year of graduate school and was before he had written his dissertation, so his supportive advisor was one of his principal influences in what was to become his signature issue. Moreover, many other Black scholars of the time were thinking along the same lines as Dr. Jones, so he found a very supportive environment for his ideas.

Employment History

Dr. Jones's first job was at Harvard University in the Department of Psychology and Social Relations. He remained there from 1970–1976, where he met and worked with many professors who became accomplished in their own right (e.g. a vice-chancellor at UCLA, President of Fisk University, a U.S. Solicitor General). During his stay at Harvard, he won a John Simon Guggenheim Fellowship. This award took him to Trinidad and Tobago to study humor – his dissertation topic. This experience led him to another one of his signature accomplishments, which was to develop his TRIOS model. TRIOS is an acronym for Time, Rhythm, Improvisation, Orality, and Spirituality, dimensions along which different cultures differ (Jones, 1979).

From Harvard, Dr. Jones took a job with a Black consulting firm in Washington, DC. When Dalmas Taylor decided to leave the Minority Fellowship Program (MFP) at the American Psychological Association (APA), he and Dr. Jones's former advisor, Kiesler, who was then APA's CEO, asked Dr. Jones to take over the MFP directorship, where he served from 1977–2005. There, he helped support hundreds of ethnic minority psychologists in their graduate studies, including those who became college administrators, major figures in multicultural psychology, and even an APA president. While serving as the director of the MFP, he simultaneously served as APA's affirmative action officer (1986–1991) and was the inaugural executive director of the Public Interest Directorate (1987–1991). During his time as executive director, he spearheaded a significant engagement with a variety of public interest issues which included two edited *American Psychologist* special issues – one on homelessness and one on HIV/AIDS. He also began his affiliation with the University of Delaware during this period (1981) where he has remained ever since, serving as chair of Black American Studies, director of the Center for the Study of Diversity, and ultimately earning the title of the Trustees Distinguished Professor.

Academic Impact

As identified earlier, Dr. Jones's two major impacts upon the profession have been on his writings on prejudice and racism and his TRIOS model. One of the major writers in the multicultural literature, Derald Wing Sue, has referred to Jones's book *Prejudice and Racism* (2nd ed.) as a must-read, as it was a definitive book on the topic. More recently, he has published *The Psychology of Diversity: Beyond Prejudice and Racism* (Jones, Dovidio, & Vietze, 2014), which is sure to become a classic in the field. This book goes beyond issues of racism and extends to differences in worldviews in the broader issue of diverse perspectives.

The TRIOS model identifies differences in the five dimensions of Time, Rhythm, Improvisation, Orality, and Spirituality. It was mainly developed to understand differences between those of African descent and White Americans, but it can be applied to people of a range of different cultural backgrounds. For example, with respect to time, some cultures tend to be future oriented, some past oriented, and some present oriented. Consequently, cultures that are future oriented may not appreciate the present enough because members of that culture are worried about what is next. Rhythm is a way of connecting one's psychological experience with the outside world to give meaning to the world. In African cultures, things like paddling a canoe or chopping a tree occur in rhythmic patterns. Improvisation is identified as both a coping mechanism and a means of personal and situational control.

Honor and Awards

Dr. Jones has had a distinguished career that has long been recognized. In 1999, he received the Lifetime Achievement Award from Division 45 (Society for the Psychological Study of Ethnic Minority Issues, later Society for the Psychological Study of Race, Culture, and Ethnicity) of the APA. He was twice recognized by Division 9 of APA (Society for the Psychological Study of Social Issues – SPSSI), first in 2001 as the recipient of the Kurt Lewin Memorial Award and then in 2009 as the recipient of the Distinguished Service Award. In 2004 he was elected president of SPSSI and led a delegation of behavioral scientists to South Africa to study truth and reconciliation, violence against women, and issues related to HIV/AIDS. In 2004, he received the Presidential Award from the Asian American Psychological Association for his advocacy of the development of Asian American psychologists, and he received the Distinguished Psychologist Award from the Association of Black Psychologists in 2007. For his long-time service to APA, he received the Distinguished Lifetime Contribution to Psychology Award from APA in 2011. In 2015, the National Multicultural Conference and Summit bestowed upon him the Distinguished Elder Award.

Personal Life

As stated earlier, Dr. Jones married his college sweetheart, Olaive Burrowes, and they had two daughters, Shelly Lovell Jones (Hairston), 1963, and Itenash (Nashe) Allegra Jones, 1970. Shelly ultimately became a medical doctor in anesthesiology, and Nashe became a marketing manager for Microsoft. Shelly has one child, Lowell James Hairston, who is the only grandchild.

See Also

Personality and Prejudice

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